

The Genus *Scelio* Latreille in Australia (Hymenoptera ; Proctotrypoidea.)

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Introduction.—The genus *Scelio* Latreille is known to occur throughout the world; it is one of the larger genera, as regards the number of species, of the family *Scelionidae*, and would seem to be very strongly represented in Australia.

At various times and in many places, the species have been bred from the eggs of short-horned grasshoppers (family *Locustidae* of Comstock, 1924), and they appear to be definitely restricted to the eggs of that family. In Australia, three species have been bred, viz.:—

S. bipartitus Kieffer (*australis* Froggatt, *ovi* Girault), from eggs of *Locusta danica* and *L. australis*.

S. fulgidus Crawford, from eggs of *Chortoicetes terminifera*.

S. chortoicetes Froggatt, from eggs of *Chortoicetes pusilla*.

Other species have been taken from Locustid egg-beds.

No stress seems to have been placed on the economic importance of these insects. However, the writer is firmly of the opinion that, in Australia, they are mainly responsible for keeping the locust plagues in check. During outbreaks of *Locusta danica* and *L. australis* in the coastal districts of North Queensland, *S. bipartitus* occurs in great numbers; the females may be seen in hundreds running over the egg-beds of the pest in question, or digging very rapidly with their forelegs in the earth in search of the host eggs. On one occasion, a cubic foot of earth taken from an egg-bed of *Locusta danica* produced 600 of the parasites and 50 locusts, giving the very efficient result of 90 per cent. parasitism.

Throughout the summer, in any district, more especially where grasshoppers are abundant, females of the various species may be collected running rapidly over bare or sandy soil; they are exceedingly active and difficult to capture. Occasionally a male may be taken where the females occur, but they appear comparatively rare; most of the males in my collection have been captured with a sweeping net. In a count of 264 bred individuals of *S. bipartitus*, 16 only were males.

The first member of the genus from Australia was described by Walker in 1839; in the last twenty years, Kieffer, Froggatt, Crawford, Girault, and Dodd have added species, and the number of described species from this country has now reached the total of twenty-nine and one variety.

During the past several years I have been gradually gathering material of this genus, and having amassed a considerable collection, including large series of many of the species, now feel in the position

to attempt a much needed revision of the group. For the purposes of the present paper, I have examined the types of all previously described species, with the exceptions of *australiensis* Kieffer, *fulgidus* Crawford, *pulchellus* Crawford, and *froggatti* Crawford; however, in the case of the last three species I have seen examples of the type series. *Australiensis* is unknown to me, and the original description is not of sufficient length to permit of its identification.

Of the 29 described species, 13 and the variety are considered synonyms by the writer, thereby reducing the number of valid species to 16. To these are added in this paper 13 new species and 3 new varieties, bringing the total to 29 species and 3 varieties.

The species *Scelio shakespearei* Girault (1926) is wrongly placed, and belongs to the genus *Sceliomorpha* Ashmead.

SCELIO LATREILLE and *SCELIOMORPHA* ASHMEAD.

Among the genera of the *Scelionidae*, the genus *Scelio* is peculiar in that there is a reduction in the number of the male antennal joints, the antennæ being 10-jointed in the male, 12-jointed in the female.

In Australia, *Scelio* might be confused with one other genus, namely, *Sceliomorpha* Ashmead, as the writer understands the latter genus. Both of these genera are strongly represented in our fauna, and the species are very similar in general size, colour, shape, and structure; *Scelio* is the more compact segregate, the species showing less diversity in structure. The two genera may be separated by means of the following characters:—

Male antennæ 10-jointed; propodeum without a complete longitudinal carina on either side; segment 1 of abdomen without a raised median area, segment 2 transversely depressed at base; forewings with the basal portion distinctly paler, and with a more or less distinct stigmal spot *Scelio* Latreille.

Male antennæ 12-jointed; propodeum with a complete longitudinal carina on either side some distance from the median line; segment 1 of abdomen at meson with a raised prominence or flat area bounded laterally by a strong stria or carina, segment 2 not depressed at base; forewings uniformly stained, not distinctly paler at base, without a stigmal spot . . . *Sceliomorpha* Ashmead.

These distinctions hold true throughout a long series of species. In addition, other characters can frequently be utilised; some of these may be stated as follows:—

Frontal depression always narrow, shallow, and not margined above; vertex of head sloping gradually to the occiput; anterior margin of mesoseutum always sloping gradually to the pronotum; scutum never with a median carina; postscutellum usually inconspicuous, always transverse, and not excavated on its dorsal surface; venation sometimes faint and obliterated; segment 2 of abdomen (except in *concinus*) shorter than 3 or 4

Scelio Latreille.

Frontal depression of head (except in *solitaria*) broad, deep, and margined above; vertex often precipitous towards the occiput; anterior margin of scutum often abruptly sloping to the pronotum; scutum sometimes with a median carina; postscutellum prominent, transverse or quadrate, if transverse its dorsal surface is excavated; venation always distinct; segment 2 of abdomen as long as 3 and plainly longer than 4 *Sceliomorpha* Ashmead.

The genus *Discelio* Kieffer is, in my opinion, not valid; the character of the bidentate or concave postscutellum is met with in several of the Australian species, and while useful as a specific distinction, has little, if any, generic value.

In passing, it is worthy of remark that in another genus closely related to *Scelio*, namely *Sparasion* Latreille, which occurs in America, Europe, and Asia, no Australian representative has yet been recorded.

CHARACTERS OF THE SPECIES.

In attempting this revision, a great deal of thought has been given to the question of reliable characters on which to base or distinguish species. The similarity in the wings and antennæ of all the species is so marked that no specific characters could be found in these appendages. I have relied chiefly on the sculpture of the head, mesoscutum, scutellum, and abdomen and the stoutness of the thorax, and to a lesser extent of the abdomen; the length of the first abdominal segment has proved a highly useful character; the pilosity of the head and thorax has been used for a few species; while the concavity of the postscutellum, utilised by Kieffer to distinguish the genus *Discelio*, is an easily recognised difference in a number of cases.

Six species are recognised in which at least the thorax is bright reddish or yellowish, but in one only, *nigricornis*, has a series of specimens been seen. In a very long series of that species, the variation is considerable, from a wholly clear thorax to one which is black except for deep red on its sides; yet in some localities *nigricornis* appears to remain constant in colour. Very probably it will be found that the other red species will vary to a much less degree.

Throughout this paper, the female has been chosen as the dominant sex, for several reasons. In the first place, males are on the whole of rare occurrence, and in many of the species are not known; secondly, the differences in sculpture in related species is much more apparent in the female; indeed, in species whose females are readily separated, it may be almost impossible to distinguish the males.

The degree of difference in the sculpture of the sexes is of interest. Usually, in the male the punctuation of the head and thorax is much coarser and closer than in the female; for instance, the punctures of the head and mesoscutum may be circular and not confluent in the female, whereas in the male of the same species they may be not only confluent

but reticulate. On the other hand, the striation of the abdomen is generally weaker and sparser in the male. In two species, *nigricornis* and *contractus*, the male wings are perfectly hyaline.

With regard to colour, as a rule the legs in the male are darker; red coxæ in the female may be black in the male, and clear femora become black or dusky. In many species, where the basal joints of the antennæ are testaceous in the female, in the male the antennæ are wholly black; but the reverse is true in *flavicornis*, and to a lesser degree in *bipartitus* and *perspicuus*. Of the females with reddish thorax, the male is known in *nigricornis* only, and is wholly black; this suggests the question whether the males of all species will not be found to be black.

NOTES ON THE DISTRIBUTION OF THE SPECIES.

Practically the whole of my collection has been made in Queensland, except for one or two localities in northern New South Wales. Thus, of the 29 species recognised herein, 23 have been taken in Queensland. Nine of the Queensland species are known to occur in New South Wales, together with *chortoicetes* Froggatt and *australiensis* Kieffer, the second of which is unknown to me. No species have been seen from Victoria. Two species, *gobar* Walker and *diemenensis* Dodd, occur in Tasmania; the latter is very closely related to *planithorax* Dodd and *ignobilis* Dodd from Queensland, while *gobar* also is probably connected with the same group. From South Australia comes *parvicornis* Dodd, nearly allied to the *punctaticeps-ignobilis* group. In South-west Australia occurs *nigricornis*, which has a further known range extending from the Northern Territory to New South Wales. *Nigricornis*, *bipartitus*, and *erythropus* have been found in the Northern Territory; the former two are common Queensland species, but *erythropus*, which has no apparent near relatives, has not been taken elsewhere.

In Queensland, the majority of my collecting has been carried out along the coast, and it is probable that most of the coastal forms are now known. Five species, *concinuus*, *cruentatus*, *nigrobrunneus*, *fulgidus*, and *contractus*, have not been obtained from any coastal district, and may be purely inland forms. The two common coastal species, *nigricornis* and *bipartitus*, extend inland at least as far as Chinchilla, 170 miles from the coast in a direct line. Another common coastal form, *flavicornis*, has not been taken inland.

Considerable collecting extending over several seasons has been effected in three districts in Queensland, namely, Cairns, including the Atherton tableland, in the north; Brisbane, including Mt. Tambourine and the Blackall Range, in the south; and Chinchilla, on the western edge of the Darling Downs. A comparison of the species known from each of these localities may be of interest.

From the Cairns district have been secured the following twelve species:—*Varipunctatus*, *fulvithorax*, *ignobilis*, *nigricornis*, *flavicornis*, *notabilis*, *sulcaticeps*, *orientalis*, *punctaticeps*, *nigriscutellum*, *bipartitus*, and *asperatus*.

From Brisbane have been collected six of the foregoing—*ignobilis*, *asperatus*, *bipartitus*, *flavicornis*, *nigricornis*, and *orientalis*; *punctaticeps* is replaced by a closely allied *striatifacies*, and *notabilis* by the somewhat similar *amoenus*; and there occurs also *planithorax*, *pilosifrons*, *improcerus*, and *perspicuus*, or a total of twelve species for the locality.

From Chinchilla have been taken *nigricornis*, *bipartitus*, and *asperatus*, occurring at both Cairns and Brisbane; *nigriscutellum* known from Cairns but not from Brisbane; *striatifacies*, *pilosifrons*, and *perspicuus*, occurring at Brisbane but not at Cairns; and *nigrobrunneus* and *contractus*, not known from either of the other districts.

Thus of 12 species from Cairns, 5 have not been found at Brisbane or Chinchilla; of 12 species from Brisbane, 3 have not been taken at Cairns or Chinchilla; and of 9 species from Chinchilla, 2 have not been collected at Cairns or Brisbane.

Moree, New South Wales, lies about 200 miles almost due south of Chinchilla, at approximately the same elevation and distance from the coast; both localities are on the eastern edge of the great inland slope, and the type of country and vegetation is very similar. Six species of *Scelio* have been secured from Moree, namely, *nigrobrunneus*, *nigricornis*, *pilosifrons*, *perspicuus*, *asperatus*, and *fulgidus*; it is significant that the first five occur at Chinchilla, while *fulgidus* has been taken at Roma, 100 miles west of the latter town.

Several species have been collected in the tropical jungle of the Queensland, as opposed to the ordinary open grassy forest country; these are *varipunctatus*, *sulcaticeps*, *amoenus*, *notabilis*, and *orientalis*. *Sulcaticeps* and *varipunctatus* are very distinctive insects, while *amoenus*, *notabilis*, and *orientalis*, together with *nigrobrunneus* from the inland brigalow (*Acacia harpophylla*) scrubs, form a more or less well-defined group of species.

KEY TO THE AUSTRALIAN SPECIES.

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| 1. Males | 32. |
| Females | 2. |
| 2. Thorax for the most part red or reddish | 3. |
| Thorax black | 9. |
| 3. Apical antennal joints contrasting pale yellow. Head and posterior half of abdomen black, scutum and scutellum confluent punctate; segments 2-5 of abdomen finely densely striate | <i>erythopus</i> Dodd. |
| Antennae black, except sometimes the basal joints | 4. |
| 4. Anterior half of scutum smooth; segments 4 and 5 of abdomen smooth; head with a few scattered punctures | <i>concinus</i> new species. |
| Scutum and segments 4 and 5 of abdomen wholly punctate or striate; head with dense punctures | 5. |
| 5. Segment 3 of abdomen striate | 6. |
| Segment 3 of abdomen mostly or in part reticulate | 7. |
| 6. Size larger; abdomen red, except at apex; frons and vertex reticulate-punctate; towards occiput with definite transverse striae; postscutellum not concave; segment 3 of abdomen very definitely striate, the surface between finely sculptured | <i>cruentatus</i> Dodd. |

- Size smaller; abdomen black; punctuation of frons and vertex confluent but not reticulate; no definite transverse striae towards occiput; postscutellum concave; segment 3 of abdomen showing definitely reticulate as well as striate *nigriscutellum pretiosus* new variety.
7. Postscutellum not concave or bigentate; frons reticulate-punctate, with a conspicuous silvery pubescence; segment 3 and sometimes 4 of abdomen finely reticulate, 4 and 5 very finely striate *nigricornis* Dodd.
- Postscutellum concave at meson; frons densely punctate but not reticulate; segment 3 in part striate, the striae of 4 and 5 stronger 8.
8. Size larger; pubescence of frons rather conspicuous; towards occiput with noticeable transverse striae; lateral margins of propodeum not incised just before posterior angles; reticulate area of segment 3 broad *fulvithorax* new species.
- Size smaller; pubescence of frons very fine and inconspicuous; no transverse striae towards the occiput; lateral margins of propodeum incised just before posterior angles which are thus prominent *nigriscutellum* Dodd.
9. Scutum with scattered punctures, the parapsidal furrows absent.
- Legs mostly piceous *varipunctatus* Dodd.
- Legs, except the tarsi, clear testaceous *varipunctatus claripes* new variety.
- Parapsidal furrows complete, if apparently absent, the punctuation is dense 10.
10. Vertex of head toward the occiput strongly sublongitudinally grooved.
- Median lobe of scutum with numerous scattered punctures, the parapsides mostly smooth *sulcaticeps* new species.
- Vertex of head towards the occiput punctate or transversely striate .. 11.
11. Scutum not uniformly punctate, smooth for the anterior portion of the median lobe 12.
- Scutum wholly punctate, not smooth anteriorly 15.
12. Segment 3 of abdomen finely reticulate, 4 and 5 hardly sculptured, almost smooth *chortoicetes* Froggatt.
- Segments 3-5 of abdomen striate 13.
13. Thorax stout, the propodeum short; parapsides, posterior half of median lobe, and the scutellum with large confluent punctures 14.
- Thorax slender, the propodeum long; parapsides smooth; posterior portion of median lobe, and the scutellum with small non-confluent punctures
fulgidus Crawford.
14. Segment 1 of abdomen transverse; scutum confluent punctate; parapsidal furrows rather obscure *perspicuus* new species.
- Segment 1 hardly shorter than its basal width; scutum reticulate-punctate; parapsidal furrows rather distinct .. *perspicuus littoralis* new variety.
15. Segment 3 of abdomen for the most part finely reticulate, segment 1 transverse 16.
- Segment 3 striate, segment 1 variable 19.
16. Frons and cheeks with a conspicuous silvery pubescence; reticulation of segment 3 not raised; scutum and scutellum rugose or reticulate-punctate .. 17.
- Frons and cheeks without noticeable silvery pubescence; reticulation of segment 3 raised, the segment showing also definite striae; punctuation of scutum and scutellum not reticulate *improcerus* new species.
17. Postscutellum not concave; thorax showing reddish, at least on the pleurae
nigricornis Dodd.
- Postscutellum concave at meson; thorax wholly black 18.
18. Frons and vertex with scattered punctures *pilosifrons* new species.
- Frons and vertex with large confluent punctures .. *contractus* new species.
19. Upper frons with longitudinal striae; head and part of thorax with stiff silvery pubescence *flavicornis* Dodd.
- Upper frons without striae; head and thorax with fine pubescence, except in *bipartitus* 20.

20. Head, and thorax more or less, with a rather stiff silvery pubescence; head, scutum, and scutellum reticulate-punctate; abdomen slender, three times as long as its greatest width, segment 1 hardly shorter than its greatest width
bipartitus Kieffer.
Pubescence of head and thorax not silvery, or if pale it is very fine and inconspicuous 21.
21. Scutum very definitely reticulate-punctate, the sculpture large and shallow, contrasting with the smaller non-reticulate punctures of the frons . .
asperatus new species.
Scutum with large or small punctures, rarely with a slight reticulate tendency, the punctation not contrasting with that of the frons 22.
22. Thorax stout, from lateral aspect not much longer than high, the propodeum abruptly declivous; segment 1 of abdomen short and transverse (except in *orientalis*); punctures of head, scutum, and scutellum larger 23.
Thorax not so stout, from lateral aspect much longer than high, the propodeum not abruptly declivous; segment 1 as long as its basal width (except in *improcerus*); punctures of head, scutum, and scutellum smaller 26.
23. Segment 1 of abdomen as long as its basal width; head, scutum, and scutellum with large confluent or sub-confluent punctures *orientalis* Dodd.
Segment 1 transverse, much shorter than its basal width 24.
24. Head toward occiput with two or three sub-transverse grooves separated by carinae; punctures of scutum separated by irregular longitudinal carinae or rugae; parapsidal furrows not punctate or rugose *notabilis* new species.
Head toward occiput with transverse rows of confluent punctures; scutum without raised striae or rugae; parapsidal furrows punctate or rugose 25.
25. Abdomen wholly black, the striae very strong, the rugose sculpture between the striae on segment 3 quite strong; scutum highly polished, the punctures dense but not confluent *amoenus* new species.
Abdomen in part deep red, the striae finer, the rugose sculpture between the striae on segment 3 fine; scutum not highly polished, the punctures confluent with a reticulate tendency *nigrobrunneus* new species.
26. Segment 1 of abdomen transverse; postscutellum concave or bidentate; segment 3 of abdomen more or less definitely reticulate between the striae
improcerus new species.
Segment 1 of abdomen as long as its basal width, segment 3 hardly or very finely sculptured between the striae; postscutellum not concave 27.
27. Parapsidal furrows widened; punctures of scutum more or less reticulate; punctures of frons scattered; coxae dark, the femora dusky, the antennae wholly black; segments 4 and 5 of abdomen broadly smooth at the meson
parvicornis Dodd.
Parapsidal furrows not widened, sometimes obscure; punctures of scutum dense or sub-confluent, without a reticulate tendency 28.
28. Mesopleurae with confluent punctures and longitudinal striae; coxae black; antennae wholly black; punctures of frons and vertex dense; posterior angles of propodeum truncate *striatifacies* Dodd.
Mesopleurae densely but not confluent punctate, and without striae 29.
29. Posterior angles of propodeum truncate; parapsidal furrows obscure; segments 3-5 of abdomen wholly striate; frons densely punctate; coxae and scape testaceous *punctaticeps* Dodd.
Posterior angles of propodeum rounded; parapsidal furrows rather distinct; segments 3-5 of abdomen more or less smooth at meson 30.
30. Punctures of frons dense; coxae and scape testaceous; abdomen stout, a little more than twice as long as its greatest width *ignobilis* new species.
Punctures of frons rather scattered 31.

31. Parapsidal furrows not very distinct; abdomen $2\frac{1}{2}$ times as long as its greatest width; coxae dark, femora dusky; antennae wholly black *diemenensis* Dodd.
Parapsidal furrows distinct; abdomen almost three times as long as its greatest width; coxae, femora, and scape testaceous .. *planithorax* new species.
32. Scutum wholly confluent or reticulate-punctate 34.
Scutum with a smooth area anteriorly 33.
Scutum with large scattered punctures Undescribed species.
33. Parapsides, posterior half of median lobe, and the scutellum, with large confluent punctures; head with large dense punctures; antennae becoming testaceous apically *perspicuus* new species.
Parapsides smooth; posterior half of median lobe and the scutellum with small non-confluent punctures; head with small scattered punctures; antennae wholly black *fulgidus* Crawford.
34. Segment 3 of abdomen finely polygonally reticulate; segment 1 transverse; antennae wholly black; wings hyaline 35.
Segment 3 of abdomen striate like 2 or 4 36.
35. Postscutellum concave at meson; abdomen stout, twice as long as its greatest width *contractus* new species.
Postscutellum not concave at meson; abdomen slender, three times as long as its greatest width *nigricornis* Dodd.
36. Postscutellum concave at meson; segment 1 of abdomen transverse *improcerus* new species.
Postscutellum not concave at meson; segment 1 of abdomen rarely a little shorter than its basal width 37.
37. Antennae testaceous, except at base; frons with conspicuous silvery pubescence 38.
Antennae black, rarely tinged with brown apically; pubescence of frons fine 39.
38. Abdomen stouter, segments 3 and 4 fully twice as wide as long; propodeal angles rounded; funicle 3 of antennae not much larger than 2 or 4 *flavicornis* Dodd.
Abdomen slender, segments 3 and 4 not greatly wider than long; propodeal angles sub-acute; funicle 3 of antennae distinctly larger than 2 or 4 *bi-partitus* Kieffer.
39. Thorax stouter, from lateral aspect not greatly longer than high, the propodeum declivous 40.
Thorax more slender, from lateral aspect about twice as long as high, the propodeum not abruptly declivous 41.
40. Scutum and scutellum confluent punctate, with a slight reticulate tendency *orientalis* Dodd.
Scutum and scutellum more definitely reticulate-punctate, the punctures much larger *asperatus* new species.
41. Femora piceous; segments 4 and 5 of abdomen smooth at meson *striatifacies* Dodd.
Femora clear testaceous; segment 5 of abdomen smooth at meson *punctaticeps* Dodd.

NOTES ON THE KEY.

Two species, *gobar* Walker and *australiensis* Kieffer, are not included in the key; the former is evidently distinct, while the latter is unknown to the writer.

In the key I have endeavoured, as far as possible, to present the species in their natural relationships. For simplicity, the species with a red thorax have been separated at once from those in which the thorax

is black; owing to the great variation in colour, the female of *nigricornis* has been placed twice, once among the red species and again among its close relations in the black species. On account of the sculpture of segment 3 of the abdomen showing reticulation more or less as well as striation, the female of *improcerus* also has been included twice.

The six species, *parvicornis*, *striatifacies*, *punctaticeps*, *ignobilis*, *diemenensis*, and *planithorax*, form a homogenous group; *nigricornis*, *pilosifrons*, and *contractus* form a closely-related group of three species; while *orientalis*, *amoenus*, *notabilis*, and *nigrobrunneus*, although differing in many respects, have a number of characters in common.

Although, owing to the marked similarity of many of the species, comparison of a series of species is necessary for correct identification, the writer is hopeful that the foregoing key will facilitate determination.

As the terms "reticulate-punctate" and "confluently-punctate" have been used to a considerable extent throughout this paper, here it may be well to define their meaning. When the circular punctures of the head and thorax are dense but distinctly separated, I have used the expression "dense but not confluent." When the margins of the punctures coincide while still keeping their circular character, the term "confluently-punctate" has been given. And when the margins of the punctures join to such an extent that the circular character is lost, the margins being broken, angled, or polygonal, the term "reticulate-punctate" has been employed. In such a case as that of *asperatus*, the reticulate-punctures of the mesoscutum are so large and shallow that the punctate character might well be lost sight of, and the sculpture almost be termed openly reticulate.

SCELIO sp.

S. parvicornis (part) Dodd, Proc. Royal Soc. of Q'land, Vol. XXVI., 1914, p. 113.

Male.—Length, 3.75 mm.

Black; legs reddish-yellow, the coxae black, the femora dusky; antennae black, brownish toward apex.

Head normal; vertex and upper frons coarsely rugose- or reticulate-punctate, arranged transversely toward the occiput, and with a conspicuous fine long pubescence; antennal impression large and smooth, on either side with a smooth area bearing a few small punctures, against the eye margins with dense punctures continued from the upper frons; against the mouth there are a few very short striae; cheeks rugose-punctate dorsally, smooth except for a few punctures on their ventral half. Antennae normal; scape rather stout; pedicel short, hardly longer than its greatest width; funicle 1 slightly longer than the pedicel, a little longer than its greatest width; 2 somewhat wider than long; 3 a little larger than 2 or 4, slightly wider than long; 4-7 plainly wider than long. Thorax rather stout; scutum smooth, with large scattered punctures, the parapsidal furrows deep and distinct; scutellum smooth, with a few

scattered punctures; mesopleurae striate. Forewings subhyaline, the venation pale yellow. Abdomen stout; segment 1 much shorter than its basal width, strongly striate; 2-6 very densely finely striate and with a noticeable pubescence on 3-7.

Female.—Unknown.

Habitat.—South Australia (exact locality unknown).

The insect on which this description was based was in the collection of the Macleay Museum, mounted on the same card as the type of *parvicornis*, and was originally described as the male of that species. The body of the unique specimen has been lost, but the forewings and antennae are present on a slide with the forewing and antennae of the type of *parvicornis* in the Macleay Museum.

The sparse punctuation of the scutum and scutellum is peculiar; obviously, this specimen represents an undescribed species of which the female is not yet known.

SCELIO AUSTRALIENSIS Kieffer.

Bull. Soc. Hist. Nat., Metz, 1905, p. 100.

S. australiensis Kieffer, Ann. Soc. Scient., Brussels, 1908, p. 133.

S. australiae Kieffer, Genera Insectorum, 1910, p. 74.

Female.—Length, 4 mm.

Black; mandibles, coxae, and legs red; scape and pedicel of a red-brown.

Head with large dense punctures, not confluent; mouth with converging striae; a smooth hardly depressed area above antennal insertion. Funicle 1 longer than wide, a little longer than 2; 3-10 forming a club and twice as wide as long. Thorax confluent punctate; parapsidal furrows evident anteriorly. Wings brown, except the basal third; nerves indistinct, except a trace of a yellow oblique stigma and the stigmal vein. Abdomen striate on all the surface, a narrow smooth posterior border of the segments.

Habitat.—New South Wales: Mount Victoria.

Type.—Probably in some European museum.

The above description is a translation of the original, and is insufficient to determine the species. It might well fit many of the described species. I have seen no representatives of the genus from the Blue Mountains; possibly collecting in the locality would rediscover the species.

I have already pointed out that Kieffer described this insect twice as a new species in almost identical words, and under the same name; later, evidently believing that the two descriptions referred to different species, he proposed the name *australiae* for the second.

SCELIO GOBAR Walker.

Monograph. Chalcid. Vol. 2, p. 61, 1839.

Female.—Length, 4 mm.

Black, the antennae concolorous, the pedicel brownish; coxae black, the femora dusky, the tibiae and tarsi yellow.

Frons with large confluent punctures, the lower half with striae converging toward the mouth; centre of vertex partly smooth. Scutum and scutellum coarsely reticulate-punctate; parapsidal furrows present. Abdominal segments wider than long, 3 a little the longest; 1 strongly striate, the rest finely striate and granulate, the striae absent at the meson. Forewings normal; dusky; submarginal vein not distinct; a distinct stigmal spot involves almost all the stigmal vein. Pedicel longer than funicle 1 and longer than its greatest width.

Male.—Head coarsely reticulate-punctate, also scutum and scutellum; stigmal spot not marked.

Habitat.—Tasmania.

Type.—In the British Museum.

The above brief description was made some years ago by the writer from an examination of the type material. Unfortunately it is not full enough to allow of the species being included in the table, but enough characters are given to permit recognition. The only other known *Scelio* from Tasmania, *diemenensis*, can apparently be distinguished from *gobar* in the small non-confluent punctures of the frons, the finer punctuation of the thorax, the indistinct parapsidal furrows.

SCELIO SULCATICEPS new species.

Female.—4.10 mm.

Black; abdomen suffused with deep red on segments 2 and 3; legs clear reddish-yellow, the coxae darker at base; antennal scape red, the pedicel reddish, the remaining joints fuscous.

Head normal; eyes larger, the space between not so wide as usual; ocelli very large; vertex between the ocelli smooth and shining, except for several punctures just behind the anterior ocellus; behind the posterior ocelli, medially, there is a transverse row of four large punctures and a short oblique row of three punctures on either side; behind these punctures are eleven strong longitudinal grooves or sulci running to the occiput, the lateral grooves rather oblique and continued down the cheeks; cheeks rather narrow, with large confluent punctures forming two long sulci; frons shining, with large circular punctures, numerous but not confluent, laterally forming two longitudinal rows which are continued for some distance on either side of the antennal impression; these rows give way to three strong striae on either side converging to the mouth; antennal impression long, rather broad, smooth; punctures

of head each with a fine pale seta, the pubescence not conspicuous. Antennal scape as long as the next five joints combined; pedicel almost twice as long as its greatest width; funicle 1 a little shorter and narrower than the pedicel, twice as long as its greatest width; 2 and the following transverse; division between funicle 5 and 6 (if the club is counted as 6-jointed, these are joints 1 and 2 of the club) oblique. Thorax stout; from lateral aspect as high as long, the propodeum rather abruptly declivous; from dorsal aspect not much longer than its greatest width; pronotum with large dense punctures bearing long dark setae; parapsidal furrows consisting of a row of large sub-confluent punctures; median lobe of the scutum with numerous large circular punctures bearing long fine setae, and there is a row of confluent smaller punctures forming a one-half complete median groove from the posterior margin; parapsides smooth except for a row of large punctures against the anterior and lateral margins and a very few (about four) smaller punctures on its surface; scutellum with large circular punctures, dense but not confluent; postscutellar plate prominent, transverse, rather deeply concave at meson; propodeum short, coarsely rugose-punctate, laterally with white pubescence, very short at the meson where there are three circular foveae; mesopleurae for the most part rather densely finely punctate, with a small smooth central area, against the tegulae with two or three deep longitudinal grooves; metapleurae strongly confluent punctate. Forewings lightly yellow throughout, the base hardly paler; venation pale yellow, distinct, the stigmal vein and spot a little darker. Abdomen a little less than three times as long as its greatest width; segment 1 about one-half as long as its basal width; 2 somewhat longer than 1; 3 slightly longer than 2, about twice as wide as long; 4 slightly shorter than 3, not much shorter than the width at its posterior margin; 5 somewhat shorter than 4, plainly longer than the width at its posterior margin; 6 as long as its basal width; 1 rather strongly striate, and finely rugose between the striae; 2 and 3 finely striate, densely granulate or coriaceous between the striae, striae denser on 2 than on 3, somewhat wavy and irregular in outline; 4 and 5 with straight stronger and rather sparser striae, failing at the median line of 4, the granulate sculpture fine on 4, not noticeable on 5; 6 densely punctate.

Male.—Unknown.

Habitat.—North Queensland: Kuranda, one female taken on the ground in the jungle, in April.

Type.—South Australian Museum, I. 16071.

The type is unique. The species has no near relations, and can be readily recognised by the longitudinal grooves toward the posterior margin of the head dorsally. In the stout thorax, and the length of the abdominal segments it approaches *notabilis* and *amoenus*. The eyes and ocelli are much larger than is usual in the genus. Perhaps the oblique division between joints 7 and 8 of the antennae is an individual peculiarity, and would not hold in a series of specimens.

SCELIO VARIPUNCTATUS Dodd.

Archiv für Naturgeschichte, Berlin, Vol. 80, 1915.

Female.—Length, 3.75 mm.

Black; legs, including the coxae, piceous, brownish at the base of the femora and tibiae, the trochanters yellow, the anterior tibiae and tarsi dusky-yellow; antennae black, the pedicel and base of the scape brownish; tegulae dark.

Head normal, the vertex less transverse than usual; vertex and upper frons smooth, with a few scattered circular punctures of moderate size; toward the occiput the punctures are rather dense but not confluent; antennal impression large and smooth, on either side with numerous circular punctures, against the mouth with a few short striae; cheeks confluent punctate; punctures bearing fine setae but the pubescence is not conspicuous. Antennal scape as long as the next four joints combined; pedicel about twice as long as its greatest width; funicle 1 slightly longer than the pedicel, almost three times as long as its greatest width; 2 quadrate, the following joints wider than long but less transverse than usual. Thorax, from lateral aspect, one-half longer than high, the propodeum not abruptly declivous; from dorsal aspect, a little less than twice as long as its greatest width; pronotum densely punctate and pubescent; parapsidal furrows wanting; scutum and scutellum smooth, with scattered rather small punctures bearing long fine setae; post-scutellar plate very short and transverse; propodeum moderately long, its posterior angles sub-truncate, densely punctate, with white pubescence laterally, at meson at its base with two divergent carinae running obliquely to the posterior angles; mesopleurae with dense punctures, not confluent, dorsally with a smooth impunctate area; metapleurae confluent punctate. Forewings very deeply smoky, the base somewhat paler; venation dusky and distinct, the stigmal spot very dark. Abdomen slender, three times as long as its greatest width; segment 1 two-thirds as long as its width at base; 2 two-thirds longer than 1; 3 a little longer than 2, not greatly wider than long; 4 a little shorter than 3, fully as long as the width at its posterior margin; 5 somewhat shorter than 4, almost as long as the width at its anterior margin and much longer than the width at its posterior margin; 6 from lateral aspect somewhat convex, hardly more than one-half as long as 5, no longer than its width at base; 1 sparsely striate, between the striae hardly sculptured; 2 rather sparsely striate, between the striae densely punctate, its posterior margin broadly smooth; 3 and 4 sparsely, finely striate and with scattered pin-punctures bearing short fine setae, broadly smooth at the meson except at the base of 3; 5 more strongly striate, narrowly smooth at the median line; 6 densely punctate and pubescent.

Male.—Unknown.

Habitat.—North Queensland: Cairns district, one female in February (type); Innisfail, one female in November, A. P. Dodd.

Type.—South Australian Museum, I. 11090.

A peculiar species, readily recognised by the sparsely punctate mesoseutum and absence of parapsidal furrows.

SCELIO VARIPUNCTATUS CLARIPES new variety.

Female.—Differs from the typical form in having the legs, including the coxae, bright reddish-yellow, the tarsi fuscous; antennal scape suffused with red.

Male.—Unknown.

Habitat.—North Queensland: Mossman, one female in April (type); Cairns district, one female in May, A. P. Dodd.

Type.—South Australian Museum, I. 16070.

Paratype.—In the author's collection.

SCELIO PERSPICUUS new species.

Female.—Length, 3.5-4.5 mm.

Black; legs, including the coxae, bright reddish-yellow; antennae black, the scape reddish-yellow, the next two joints more or less yellowish.

Head normal; frons densely punctate, but not confluent so, the punctures moderately large, the surface between finely alutaceous; vertex smooth, with numerous scattered punctures; toward the occiput are several strong transverse striae or carinae, between which are confluent punctures; pubescence fine and not conspicuous; face on either side of the smooth antennal impression with strong striae converging to the mouth; cheeks rather broad, coarsely confluent punctate. Antennae normal; pedicel one-third longer than its greatest width; funicle 1 cupuliform, somewhat distinctly longer than the pedicel, the remaining joints transverse. Thorax stout; from dorsal aspect one-third longer than its greatest width; from lateral aspect slightly longer than high, the propodeum rather abruptly declivous; pronotum coarsely shallowly rugose-punctate and with conspicuous stiff pubescence; scutum with large circular confluent punctures, the anterior two-fifths to one-half of the median lobe smooth and shining and without sculpture except for a few scattered obscure punctures bearing pale setae; parapsidal furrows very obscure, consisting of a row of rugose punctures; scutellum with large confluent punctures; postscutellum prominent as a transverse emarginate rugose plate; propodeum short at meson, its posterior angles truncate, densely rather finely punctate, laterally with silvery pubescence; propleurae confluent longitudinally punctate; mesopleurae strongly striate above, its depression rather finely densely punctate in more or less regular longitudinal lines; metapleurae rather strongly confluent punctate. Forewings normal; deeply smoky, the basal portion paler and yellowish; venation pale, very obscure; a small distinct stigmal spot is present. Abdomen moderately slender, $2\frac{1}{2}$ times as long as its greatest

width; segment 1 hardly more than one-half as long as its basal width; 2 one-half longer than 1; 3 a little yet distinctly longer than 2, no more than twice as wide as long; 4 hardly shorter than 3; 5 rather distinctly shorter than 4, as long as the width at its posterior margin; 6 two-thirds as long as 5, almost as long as its basal width; 1 strongly striate, rugose between the striae; 2 rather strongly striate and finely coriaceous between the striae; 3 striate, and between the striae finely rugose or coriaceous, the striae curving away somewhat from the median line which is thus granulate and devoid of striae; striae on 4 straight, the surface granulate, the striae failing at the meson; 5 sparsely striate, hardly sculptured between the striae, with a few small punctures posteriorly; 6 rugose-punctate and pubescent.

Male.—Coxae fuscous; antennal scape and pedicel black or fuscous, the remaining joints bright yellow-brown.

Frons and vertex confluent reticulate-punctate, toward the occiput with a transverse arrangement, the surface also finely alutaceous. Smooth anterior area of median lobe of the scutum with scattered large punctures, the punctures of the posterior half very irregular in size and arranged in five longitudinal lines; parapsidal furrows quite distinct. Forewings subhyaline, the venation distinct, the submarginal vein yellow, the stigmal vein dark. Segments 3-6 of abdomen with fine striae and rather dense short fine pubescence. Antennal scape moderately long and stout; pedicel small, no longer than its greatest width; 2 quadrate; 3 a little yet distinctly longer than 2, a little longer than wide; 4 a little narrower and plainly shorter than 3, one-half wider than long; 4-7 subequal.

Habitat.—South Queensland: Chinchilla, six females, one male, in January and February; Morven, one female, in March. New South Wales: Moree, one female, in January.

Type.—South Australian Museum, I. 16069.

Allotype.—In the author's collection.

Paratypes.—In the Queensland Museum and the author's collection.

The species is easily distinguished by the smooth area on the mesoscutum anteriorly. In *chortoicetes* and *fulgidus* the scutum is partly smooth, but these species bear small punctures and are very different in general appearance. In the stout thorax and the large size of the punctures of the head, and thorax, *perspicuus* approaches *orientalis*, *amoenus*, and *notabilis*.

SCELIO PERSPICUUS LITTORALIS new variety.

Female.—Differs from the typical form in several particulars. The sculpture of the scutum is rugose- or reticulate-punctate; the anterior smooth area is rather smaller and bears more definite scattered punctures; the parapsidal furrows are shallow, rugose, but quite distinct; the scutellum is reticulate-punctate; the postscutellum is not so prominent;

there is a narrow smooth area against the anterior margin of the mesopleural depression for its ventral half; segment 1 of the abdomen is longer, being almost as long as the width at its base.

Male.—Unknown.

Habitat.—South Queensland: Mount Tambourine, one female, in February; Blackall Range, one female, in January, A. P. Dodd.

Type.—In the Queensland Museum.

Paratype.—In the author's collection.

This may be the coastal form of *perspicuus*, or possibly a distinct species.

SCELIO FULGIDUS Crawford.

Proc. U. S. National Museum, Vol. 41, 1911.

Female.—Length, 3.5 mm.

Black; coxae dusky-black, the legs bright reddish-yellow; antennae black, the first two joints sometimes washed with red.

Head normal except that the vertex is broader and more transverse than usual; vertex smooth and shining, with scattered small punctures which are not denser toward the occiput; frons with similar punctures except that they are somewhat closer and denser; face above the antennal insertion not noticeably depressed, smooth, on either side with a very few punctures and with fine striae converging toward the mouth; cheeks without carinae, with dense punctures, toward the mouth smooth except for a few punctures; cheeks, occiput, and lower face with a pubescence of fine silky hairs; face and vertex without noticeable pubescence, but each puncture bears a very short fine seta. Antennae normal; scape as long as the next four or five joints combined; pedicel one-half longer than its greatest width; funicle 1 cupuliform, as long as the pedicel, 2 and the following transverse. Thorax from lateral aspect fully twice as long as high, the propodeum not declivous; from dorsal aspect two-thirds longer than its greatest width; pronotum coarsely rugose-punctate and with long white pubescence; parapsidal furrows consisting of a foveate row of large punctures, well-marked; a row of similar punctures against the anterior and lateral margins of the parapsides; parapsides smooth, except for a few scattered small punctures; anterior half or more of the median lobe of the scutum smooth, except for a very few minute punctures; posterior half of the median lobe with dense punctures of moderate size, arranged sub-confluently in five or six longitudinal rows; scutellum rather densely punctate, the punctures not large or confluent; scutum and scutellum with scattered long fine setae; postscutellum visible only as a thin line; propodeum rather long, its posterior angles rounded, densely rugose- or reticulate-punctate, at meson with indications of longitudinal carinae, laterally with white pubescence; mesopleurae finely punctate and longitudinally striate, but smooth ventro-anteriorly; metapleurae strongly rugose-punctate. Forewings normal; lightly smoky, the basal portion sub-hyaline; venation very pale and obscure. Abdomen

hardly more than twice as long as its greatest width; segment 1 about as long as its width at base; 2 somewhat longer than 1; 3 a little yet distinctly longer than 2, fully twice as wide as long; 4 a little yet distinctly shorter than 3, rather less than one-half as long as the width at its posterior margin; 5 plainly shorter than 4, distinctly shorter than the width at its posterior margin; 6 much shorter than the width at its base; 1 strongly striate, and rugose between the striae; 2-5 very finely and densely striate except for the broadly smooth posterior margins; 6 rugose-punctate; 4-6 with scattered fine setae.

Male.—Antennae wholly black or piceous; coxae black, the femora piceous, the tibiae and tarsi yellow. Forewings hyaline. Vertex of head finely wrinkled or alutaceous; against the occiput finely transversely striate. Segment 3 of abdomen smooth laterally; 4 broadly smooth laterally and posteriorly; 5 and 6 wholly smooth, with a few scattered setae. Antennal scape rather short and stout, no longer than the next three joints combined; pedicel hardly longer than its greatest width; funicle 1 cupuliform, distinctly longer than the pedicel, one-half longer than its greatest width; 2 somewhat wider than long; 3 a little larger than 2 and perceptibly larger than 4, as wide as long; 4-7 much wider than long.

Habitat.—South Queensland; Toowoomba, a small series, H. Tryon; Roma, one female in November, A. P. Dodd. New South Wales; Penderennis and Singleton (type), W. W. Froggatt; Moree, three females in January, A. P. Dodd.

Type.—In the United States National Museum.

I have been permitted to examine part of the type series. A rather distinct species on account of the sculpture of the scutum.

This insect has been bred by Mr. Froggatt and Mr. Tryon from the eggs of the plague locust, *Chortoicetes terminifera* Walker.

SCELIO CHORTOICETES Froggatt.

Farmers' Bulletin No. 29, N. S. Wales Dept. of Agriculture, 1910,
p. 34-35.

S. pulchellus Crawford, Proc. U.S. National Museum, Vol. 41, 1911.

Female.—Length, 3.75 mm.

Black; legs bright reddish-yellow, the coxae darker; antennae black, the first three or four joints clear reddish-yellow.

Head normal, the eyes rather smaller than usual; wholly smooth, except for rather numerous scattered small punctures bearing fine setae; occiput transversely striate; cheeks broader than usual. Antennae normal; scape long; pedicel almost twice as long as its greatest width; funicle 1 shorter than the pedicel, the remainder transverse. Thorax, from dorsal aspect, two-thirds longer than its greatest width; from lateral aspect, not much less than twice as long as high, the propodeum

not declivous; pronotum coarsely rugose-punctate and with white pubescence; parapsidal furrows deep, broad, rugose; parapsides smooth, except for a few scattered small punctures; median lobe of scutum for its posterior three-fifths strongly reticulate-punctate, the anterior portion smooth but with numerous large shallow circular punctures; scutellum strongly reticulate-punctate; scutum and scutellum with scattered pubescence; postscutellum very transverse, its posterior margin straight; propodeum moderately long, its posterior angles truncate, densely finely punctate, at meson with a pair of carinae, on either side of which are several obscure sub-oblique rugae or carinae, laterally with white pubescence; mesopleurae strongly longitudinally striate; metapleurae rugose-punctate. Forewings lightly smoky, the basal portion paler; venation pale, indistinct, the stigmal spot small and not very distinct. Abdomen rather stout, two and a-third times as long as its greatest width; segment 1 hardly one-half as long as the width across its base; 2 almost twice as long as 1; 3 not much longer than 2, fully twice as wide as long; 4 hardly shorter than 3, hardly more than one-half as long as the width at its posterior margin; 5 two-thirds as long as 4, as long as the width at its posterior margin; 6 one-half as long as 5, shorter than its basal width; 1 rather strongly striate, rugose between the striae; 2 finely densely striate; 3 finely densely polygonally reticulate; 4 showing impressed reticulation which becomes indistinct posteriorly, the surface appearing almost smooth; 5 smooth, but showing faint reticulation; 6 rugose-punctate; 4 and 5 with a few setae which are denser on 6.

Male.—Unknown.

Habitat.—New South Wales: Lake Cowal, W. W. Froggatt.

Type.—In the collections of the Department of Agriculture, New South Wales.

A species without any close relations among the black forms. The sculpture of the median lobe of the scutum resembles that of *perspicuus*, but in that species the parapsides are densely sculptured, the head bears large dense punctures, the thorax is stout, and segments 3-5 of the abdomen are strongly striate. *Fulgidus* has a smooth anterior area on the scutum and the parapsides are smooth, but the punctuation of the posterior of the scutum and of the scutellum is quite different, and segments 3-5 of the abdomen are densely finely striate. *Chortoicetes* shows the closest affinity with the small red *concinus*, but in the latter the smooth area of the scutum is much more extensive and the scutellum is irregularly longitudinally striate.

Mr. Froggatt bred this species from the eggs of the small plague locust, *Chortoicetes pusilla*.

S. pulchellus Crawford is a true synonym, and was described from part of the same material on which *chortoicetes* was based.

SCELIO CONCINNUS new species.

Female.—Length, 2.75 mm.

Head black; thorax rich orange-red, the scutellum and postscutellum contrasting dusky-black; abdomen dark brownish, black along its lateral margins; antennae black, the scape and pedicel orange-yellow, the next two joints suffused with yellow; legs wholly bright orange-yellow.

Head normal; vertex and frons smooth and polished, with a few scattered punctures of moderate size, the surface in some lights showing faintly alutaceous; toward occiput with fine transverse sub-circular striae and scattered long pubescence; cheeks narrow dorsally, broad ventrally, smooth and impunctate except for a few punctures and scattered pubescence dorsally. Antennae short; pedicel one-half longer than its greatest width; funicle 1 small, much smaller than the pedicel, a little longer than its greatest width, the remaining joints, except the last, transverse. Thorax from dorsal aspect a little less than twice as long as its greatest width; from lateral aspect about one-half longer than high, the propodeum not abruptly declivous; pronotum coarsely rugose-punctate and pubescent; parapsidal furrows well-marked and complete; median lobe of scutum for its posterior third reticulate-rugose, the anterior two-thirds smooth and polished except for a few irregular longitudinal striae; parapsides smooth, except for a few indefinite striae and punctures; scutellum strongly, irregularly, longitudinally striate, rugose laterally; postscutellum appearing at meson as a small feebly-bidentate plate; propodeum rather long, its posterior angles truncate, obliquely rugose-punctate, at meson with several longitudinal carinae or striae, without the usual lateral pubescence; mesopleurae densely longitudinally striate; metapleurae rugose. Forewings normal; lightly smoky, the basal portion pale yellowish; venation very pale and indistinct; a small distinct stigmal spot is present. Abdomen broadly ovate, no more than twice as long as its greatest width; segment 1 one-half as long as the width across its base; 2 twice as long as 1, and fully twice as wide as long; 3 hardly as long as 2; 4 a little yet distinctly shorter than 3; 5 plainly shorter than 4, and hardly one-half as long as the width at its posterior margin; 1 strongly densely striate; 2 more finely, very densely striate, the striae somewhat irregular; 3 finely densely reticulate, the reticulation raised for the major part but impressed laterally; 4 with obscure reticulation at base, smooth and shining for the rest; 5 and 6 smooth and shining.

Male.—Unknown.

Habitat.—South-west Queensland: Morven, one female in February, A. P. Dodd.

Type.—South Australian Museum, I. 16068.

This little species differs from all the red species in the sculpture of the scutum and scutellum. Of the black species, it resembles *chortoicetes* in the sculpture of the abdomen and the sparsely punctate head, but differs in colour, smaller size, more extensively smooth scutum, and the striate scutellum.

SCELIO ERYTHROPUS Dodd.

Trans. Ent. Soc. of London, 1919, p. 345.

Female.—Length, 4 mm.

Head and posterior half of abdomen black; thorax and basal half of abdomen orange; scutellum dusky; legs orange, also scape; pedicel fuscous, the next five or six joints black, the apical four or five joints pale yellow.

Head normal; with large punctures, these confluent on the frons, sub-confluent on the vertex; a few striae around the mouth; frontal depression short and narrow; eyes large, bare. Scutum confluent reticulate-punctate, also the scutellum; parapsidal furrows evident; propodeum rugose-punctate. Forewings reaching apex of abdomen; dusky; venation indistinct; stigmal spot distinct, covering the base of the stigmal vein. Abdomen about twice as long as its greatest width; segments all wider than long, 3 a little the longest; 1 striate and rugose between the striae, the rest rather finely densely striate and finely coriaceous between the striae; apex of 3, 4, and 5 with a semi-smooth narrow mesal area. Scape long and slender; funicle 1 longer than the pedicel and distinctly longer than its greatest width, the following joints all wider than long.

Male.—Unknown.

Habitat.—North Australia: Adelaide River, one female.

Type.—In the British Museum.

The type is unique. The species is peculiar on account of the pale yellow apical joints of the antennae, and the orange or red basal half of the abdomen contrasting with the black posterior portion.

SCELIO CRUENTATUS Dodd.

Proc. Royal Soc. of Queensland, Vol. XXVI., 1914, p. 112.

Female.—Length, 4.15 mm.

Bright red, the head black, the apical two abdominal segments dusky; legs wholly intense reddish-yellow; first four antennal joints testaceous, the remainder black.

Head normal; upper frons and vertex confluent reticulate-punctate, the punctures moderately large and shallow, and with a very short fine pale pubescence; toward occiput with several irregular transverse striae between which are indefinite punctures; antennal impression smooth, long and narrow, on either side broadly reticulate-punctate to the eye margins; against the mouth with very short striae; cheeks shallowly reticulate-punctate above, smooth toward the mouth except for large scattered punctures. Antennae normal; scape as long as the next five joints combined; pedicel twice as long as its greatest width; funicle 1 a little shorter and narrower than the pedicel; 2 and the following much wider than long. Thorax normal; from dorsal aspect, two-thirds longer than its greatest width; from lateral aspect, fully one-half longer than

high, the propodeum not declivous; pronotum coarsely rugose- or reticulate-punctate; scutum strongly reticulate-punctate with a pronounced longitudinal arrangement, especially on the median lobe; parapsidal furrows deep, foveate, and complete; scutellum strongly longitudinally reticulate-punctate; postscutellar plate transverse, its posterior margin straight; propodeum moderately long, at meson with a pair of well-defined carinae, for the rest finely densely punctate in sub-oblique arrangement, the lateral patch of pubescence inconspicuous; mesopleurae strongly longitudinally striate. Forewings normal; deeply smoky, the basal third paler; venation very pale and indistinct, the stigmal vein and spot fuscous. Abdomen two and a-third times as long as its greatest width; segment 1 short, transverse; 2 two-thirds longer than 1; 3 plainly longer than 2, hardly twice as wide as long; 4 slightly shorter than 3, not much shorter than the width at its posterior margin; 5 a little shorter than 4, somewhat longer than the width at its posterior margin; 6 one-half as long as 5, as long as the width at its base; 1 strongly striate; 2 very densely, rather strongly striate; 3 very densely but more finely striate than 2, finely rugose between the striae; 4 and 5 rather densely finely striate, and without sculpture between the striae; 6 rugose-punctate.

Male.—Unknown.

Habitat.—North-west Queensland: Cloncurry, one female in April, A. P. Dodd.

Type.—South Australian Museum, I. 11019.

The type is unique. Of the red species, *cruentatus* is at once recognised from *nigricornis* by the absence of the conspicuous white pubescence on the head and thorax, and in having segment 3 of the abdomen striate instead of reticulate. From *fulvithorax*, it differs in the abdomen being red, the postscutellum not bidentate or concave, segment 3 of the abdomen being definitely striate, the punctuation of the scutum bearing a longitudinal arrangement, and in the reticulate punctuation of the frons. *Nigriscutellum* has the abdomen and postscutellum black, the apical abdominal segments shorter, the punctuation of the head is not reticulate, there are no definite transverse striae towards the occiput, the postscutellum is concave at meson, and segment 3 of the abdomen is reticulate medially.

Of the black species in which the first abdominal segment is transverse, *notabilis*, *amoenus*, and *nigrobrunneus* all differ in the stout type of thorax with declivous propodeum; the sculpture of the scutum is very different in *amoenus* and *notabilis*; *nigrobrunneus* differs in having no longitudinal arrangement of the sculpture of the scutum and scutellum, and the stronger irregular striae of segment 3 of the abdomen are very dissimilar from the fine regular striae of *cruentatus*. *Improcerus*, in which the thorax is not so stout while segment 1 of the abdomen is transverse, has the postscutellum concave, the punctuation of the head, scutum and scutellum not reticulate nor with a longitudinal arrangement on the scutum and scutellum.

SCELIO NIGRISCUTELLUM Dodd.

Trans. Royal Soc. of S. Aust., vol. xxxvii., 1913, p. 137.

S. melanogaster Dodd; Trans. Ent. Soc. of London, 1919, p. 347.

Female.—Length, 3 mm.

Head and abdomen black; thorax bright reddish-yellow, the scutellum and postscutellum dusky-black; legs, including the coxae, bright reddish-yellow; antennae black, the scape washed with red; mandibles red.

Head normal; frons and vertex with moderately large punctures, dense but not confluent; toward occiput confluent and arranged in sub-transverse rows; confluent in longitudinal rows on either side of the antennal impression; cheeks broad, confluent rugose-punctate; each puncture bears a very fine, short seta, the head thus without noticeable pubescence; mandibles long, acutely bidentate. Antennae normal; scape as long as the next five joints combined; pedicel rather slender, almost twice as long as its greatest width; funicle 1 cupuliform, rather distinctly shorter than the pedicel, the following joints transverse. Thorax from lateral aspect two-thirds longer than high, the propodeum not declivous; from dorsal aspect two-thirds longer than its greatest width; pronotum coarsely rugose-punctate and with rather stiff pale pubescence; scutum strongly rugose-punctate, with a distinct longitudinal tendency; parapsidal furrows deep and complete but somewhat obscured by the coarse sculpture; scutellum with similar but finer sculpture, the longitudinal arrangement pronounced; scutum and scutellum with scattered fine pubescence; postscutellum gently concave at the meson; propodeum long, its posterior angles truncate, with a pair of median carinae, its surface finely densely reticulate-punctate, the lateral patch of pubescence short and inconspicuous; meso- and metapleurae confluent longitudinally punctate and striate. Forewings lightly smoky, pale toward base; venation pale yellow, indistinct, the stigmal spot small and dark. Abdomen slightly more than twice as long as its greatest width; segment 1 short, more than three times as wide as the length at meson; 2 plainly longer than 1; 3 one-half longer than 2, somewhat less than twice as wide as long; 4 a little shorter than 3, less than one-half as long as the width at its posterior margin; 5 plainly shorter than 4, not greatly shorter than the width at its posterior margin; 6 one-half as long as 5, about one-half as long as its basal width, toward posterior margin with a margined border, the apex projecting just below this; 1 and 2 densely, rather finely striate, and finely rugose between the striae; 3 at meson finely reticulate-punctate, for the rest rather strongly striate but the reticulate sculpture is visible between the striae toward the medial area; 4 longitudinally striate, but the striae fail medially where the surface is opaque; 5 and 6 strongly striate.

Male.—Unknown.

Habitat.—North Queensland; exact locality unknown (type); Cairns district, one female in January; Mackay, one female in May.

Type.—South Australian Museum, I. 1369.

The type of *melanogaster* is in the British Museum.

Nigriscutellum was described from an imperfect specimen. A re-examination of the type, and of a third female, from Cairns, has established the fact that *melanogaster* is a true synonym.

This species closely resembles the bright forms of *nigricornis* in colour; in structure it agrees with the *nigricornis* group, embracing *nigricornis*, *pilosifrons*, and *contractus*, in the short first segment of the abdomen, and the reticulate sculpture of segment 3; however, it lacks the recumbent pubescence of the head of that group, and the reticulate area on segment 3 of the abdomen is quite restricted. Another character, small in itself but apparently valid, is the sharp incision of the lateral margin of the propodeum just before the posterior angle, so that the angle is prominent in the form of a blunt tooth; in *nigricornis*, *fulvithorax*, and their allied species, although the posterior angles of the propodeum are truncate, they are not prominent nor suggest the form of a tooth.

SCELIO NIGRISCUTELLUM PRETIOSUS new variety.

Female.—Differs from the typical form in that the punctures of the head are denser and confluent, and although the reticulation of segment 3 of the abdomen is distinct, the striae are present at the meson as well as laterally.

Habitat.—South Queensland: Chinchilla, one female in January, A. R. Taylor.

Type.—In the author's collection.

Only three specimens of the typical form have been seen, all from the coastal districts of North Queensland. Hence it is a little surprising to find the species in an inland district in Southern Queensland. When further specimens are known, from connecting localities, it will probably be found that the characters given for this variety do not hold, the two forms intergrading.

SCELIO FULVITHORAX new species.

Female.—Length, 3.5-4 mm.

Head and abdomen black; thorax rich orange-red, unmarked with black; legs wholly clear reddish-yellow; antennae black, the first three or four joints red.

Head normal; frons and cheeks with a pubescence of short silvery recumbent setae, this pubescence not as pronounced as in *nigricornis*; frons with large circular punctures, dense and sub-confluent, continued on either side of the rather long narrow antennal impression; punctures of vertex numerous but not dense, the surface between without sculpture; between the posterior ocelli and the occiput are strong, sub-transverse, sub-circular striae, between which are numerous large punctures; cheeks confluent punctate; mandibles long, bidentate, the teeth long and

acute. Antennae normal; scape as long as the next five joints combined; pedicel scarcely twice as long as its greatest width; funicle 1 a little shorter than the pedicel, the following joints transverse. Thorax from lateral aspect two-thirds longer than high, the propodeum not declivous; from dorsal aspect almost twice as long as its greatest width; pronotum coarsely rugose-punctate, and with silvery pubescence; scutum confluent punctate, the punctures large, uneven in size, the sculpture tending toward rugose-punctate and with a slight longitudinal tendency; parapsidal furrows complete and broad but obscured by the sculpture; scutellum rather definitely longitudinally rugose-punctate; pubescence of scutum and scutellum fine and not conspicuous; postscutellum prominent, very distinctly concave at the meson; propodeum rather long, its posterior angles truncate, at meson with a pair of well-separated carinae, its surface sub-obliquely rugose-punctate, laterally with short fine pubescence; depressed area of mesopleurae rather strongly longitudinally striate, the surface between the striae indefinitely punctate; metapleurae strongly longitudinally rugose-punctate. Forewings normal; lightly smoky, paler at base; venation pallid, obscure, the stigmal spot small and dark. Abdomen about two and a-third times as long as its greatest width; segment 1 short, fully three times as wide as long; 2 distinctly longer than 1; 3 plainly longer than 2, almost twice as wide as long; 4 hardly shorter than 3, somewhat distinctly shorter than the width across its posterior margin; 5 rather distinctly shorter than 4, one-half as long as its width at the anterior margin, and about as long as the width at its posterior margin; 6 two-thirds as long as 5, a little shorter than its width at base; 1 strongly striate, and rugose between the striae; 2 densely striate, the striae somewhat wavy and irregular, the surface between finely sculptured; 3 for the most part densely polygonally reticulate, this sculpture giving way laterally and posteriorly to longitudinal striae; 4 rather strongly longitudinally striate, the striae straight, the surface between hardly sculptured; striae on 5 somewhat stronger and sparser than on 4; 6 longitudinally rugose-striate. •

Male.—Unknown.

Habitat.—North Queensland: Kuranda, three females in March, F. P. Dodd.

Type.—South Australian Museum, I. 16075.

Paratypes.—In the author's collection.

This species comes near *nigricornis* and *nigriscutellum*, being in many respects intermediate between the two. From *nigricornis* it differs in the concave postscutellum, the sparser punctuation of the head, and the strong striae of segments 4 and 5 of the abdomen. From *nigriscutellum* it differs in the more pronounced pilosity of the head, the definite transverse striae toward the occiput, and the larger reticulate area on segment 3 of the abdomen.

SCELIO NIGRICORNIS Dodd.

Trans. Royal Soc. of S. Aust., vol. xxxvii., 1913, p. 136.

S. semisanguineus Girault, The Entomologist, London, July, 1914, p. 197.

S. semisanguineus var. *nigrocinctus* Dodd, Trans. Ent. Soc. of London, 1919, p. 346.

Female.—Length, 3.4 mm.

Head always black; thorax very variable in colour, from bright chestnut or orange-red unmarked with black to wholly black except that the pleurae and propodeum are more or less dark red; abdomen varying from wholly black except for traces of red on segments 2 and 3 to castaneous margined with black and with the two apical segments black; legs clear golden-yellow or red, the coxae sometimes dusky, the femora sometimes washed with brown; antennae black, the first four joints sometimes clear reddish-yellow or more or less dusky; mandibles red.

Head normal; with a very pronounced pubescence of stiff silvery recumbent setae, more conspicuous on the cheeks and frons; frons and vertex coarsely reticulate- or rugose-punctate; toward the occiput with sub-transverse striae, between which are shallow indefinite punctures; cheeks with large, shallow, confluent punctures; mouth without converging striae; mandibles long, acutely bidentate. Antennae normal; scape as long as the next four joints combined; pedicel twice as long as its greatest width; funicle 1 somewhat shorter than the pedicel, the following joints transverse. Thorax, from lateral aspect, one-half longer than high, the propodeum not abruptly declivous; from dorsal aspect, two-thirds longer than its greatest width; pronotum coarsely rugose-punctate, and with long, stiff, white pubescence; scutum and scutellum with scattered pubescence, strongly rugose- or reticulate-punctate with a more or less definite tendency toward longitudinal arrangement; parapsidal furrows deep, broad, and foveate; postscutellum showing as a transverse plate, its posterior margin feebly convex and emarginate; propodeum rather long, its posterior angles truncate, at meson with a pair of well-separated longitudinal carinae, its surface sub-obliquely, irregularly striate and finely rugose-punctate, laterally with silvery pubescence; mesopleurae rather strongly longitudinally striate; metapleurae longitudinally rugose-striate. Forewings lightly smoky, paler at base; venation pallid, obscure, the stigmal spot and stigmal vein dusky. Abdomen somewhat variable in length, from slightly more than twice as long as its greatest width to almost three times as long as wide; segment 1 short, fully three times as wide as long; 2 almost twice as long as 1; 3 plainly (about one-half) longer than 2, distinctly less than twice as wide as long; 4 a little shorter than 3, not greatly shorter than the width across its posterior margin; 5 somewhat shorter than 4, longer than the width across its posterior margin; 6 one-half as long as 5, as long as the width across its base; 1 rather strongly and somewhat irregularly striate, rugose between the striae; 2 densely striate, the striae

somewhat wavy and irregular, the surface between finely rugose; 3 densely, finely, reticulate-punctate, without striae except toward extreme lateral margin; 4 either almost wholly reticulate or finely striate; 5 finely striate; 6 rugose-striate.

Male.—Body wholly black; antennae black; coxae black, the femora dusky, the tibiae and tarsi testaceous. Pubescence of head finer and less conspicuous than in the female; sculpture of head toward the occiput coarsely rugose-punctate with a transverse tendency but without distinct transverse striae. Forewings hyaline. Abdomen more slender than the thorax, of 8 visible segments; 3 almost twice as wide as long; 5 and 6 each plainly shorter than the width across the posterior margin; 7 and 8 short and transverse. Antennal scape as long as the next four joints combined; pedicel one-half longer than its greatest width; funicle 1 scarcely shorter than the pedicel, cupuliform; 2-7 plainly wider than long; 3 not perceptibly larger than 2 or 4.

Habitat.—Northern Territory: Darwin, G. F. Hill. Queensland: Mossman; Cairns; Atherton; Herbert River; Biggenden; Brisbane; Chinchilla; A. P. Dodd. New South Wales: Goondiwindi; Moree. South-west Australia: Yallingup, R. E. Turner. Three males, a large series of females.

Type.—South Australian Museum, I. 1368.

The type of *semisanguineus* is in the Queensland Museum, and that of *nigrocinctus* in the British Museum.

The species was originally described from the male sex. Girault founded *semisanguineus* on the typical bright-coloured form, from the Northern Territory. The variety *nigrocinctus*, from South-west Australia, can hardly be considered valid, seeing that the species is so variable in colour.

The three males I have seen, are all from the Cairns district. All the females in a series from North Queensland, and those from the Northern Territory, are of the bright-coloured form, with the thorax wholly red except that the scutellum is often dusky. Dark forms are encountered in Southern Queensland; a long series from Chinchilla is very variable in colour; in many the black on the thorax predominates, but there is always some red on the sides of the thorax. I have yet to see a wholly black female; on the other hand the three males are unmarked with red, and the black colouration is probably constant in this sex. It is evident that the species has a wide range.

SCELIO PILOSIFRONS new species.

Female.—Length, 3.4 mm.

Black; legs bright reddish-yellow, the coxae dusky-black; antennae black, the first three joints reddish-yellow.

Head normal; vertex and upper frons smooth and polished, with scattered rather small punctures, the surface very finely alutaceous or wrinkled; lower frons, and on either side of the antennal impression,

with larger, denser punctures bearing stiff, silvery, recumbent pubescence; toward occiput rather finely transversely striate; cheeks with stiff silvery pubescence, with three rows of rather large, sub-confluent punctures separated by two obscure carinae. Antennae normal; scape as long as the next four or five joints combined; pedicel almost twice as long as its greatest width; funicle 1 somewhat distinctly shorter than the pedicel, cupuliform, one-third longer than its greatest width, the remaining joints transverse. Thorax rather stout; from dorsal aspect fully one-half longer than its greatest width; from lateral aspect rather less than one-half longer than deep, the propodeum not abruptly declivous; pronotum coarsely rugose-punctate and with stiff pubescence; scutum and scutellum with scattered setae, confluent punctate, the punctures large but not of regular size; parapsidal furrows deep, foveate, and complete; postscutellum rather prominent, bidentately concave at meson; propodeum moderately long, at meson with a pair of well-separated longitudinal carinae, the rest strongly obliquely striate or finely carinate and finely rugose between the striae, laterally with a narrow punctate pubescent area; meso- and metapleurae with stiff white pubescence along the anterior margins; depressed area of mesopleurae strongly longitudinally striate, the surface between the striae smooth and shining; metapleurae strongly rugose-punctate. Forewings lightly smoky, the basal portion paler; venation very pale and indistinct; a small dark stigmal spot is present. Abdomen hardly more than twice as long as its greatest width; segment 1 transverse, not one-half as long as the width across its base; 2 almost twice as long as 1; 3 very distinctly (about one-third) longer than 2, twice as wide as long; 4 a little shorter than 3; 5 somewhat but not greatly shorter than 4, as long as the width across its posterior margin; 6 rather long, as long as the width across its base; 1 strongly striate and rugose between the striae; 2 very densely, rather finely striate, the surface between polished and hardly sculptured; 3 with a dense sculpture of fine wavy or zigzag lines forming an intricate pattern, its lateral and posterior margins striate; 4 and 5 very finely, rather densely striate and with scattered fine hairs; 6 rugose-punctate.

Male.—Unknown.

Habitat.—South Queensland: Brisbane, two females in February; Chinchilla, six females in January. New South Wales: Moree, three females in October, January, and March; Goondiwindi, one female in December.

Type.—South Australian Museum, I. 16079.

Paratypes.—In the South Australian and Queensland Museums and the author's collection.

This species is related to *nigricornis*, but can be distinguished by the sparsely punctate head, and the peculiar pattern of the sculpture of segment 3 of the abdomen.

SCELIO CONTRACTUS new species.

Female.—Length, 2.75 mm.

Black; legs, including the coxae, wholly deep reddish-yellow; antennae black, the scape red, the next three joints dusky-reddish; mandibles red.

Head normal; frons and vertex strongly confluent reticulate-punctate, the punctures large, this sculpture continued on either side of the smooth frontal depression to the mouth; with short appressed silvery pubescence; toward occiput with several strong sub-transverse striae between which are shallow obscure punctures; cheeks with similar sculpture and pubescence to the frons. Antennae rather short; scape as long as the next five joints combined; pedicel two-thirds longer than its greatest width; funicle 1 somewhat shorter than the pedicel, cupuliform, one-third longer than its greatest width, the following joints transverse. Thorax rather stout; from dorsal aspect one-third longer than its greatest width; from lateral aspect one-half longer than high, the propodeum not abruptly declivous; pronotum short, rugose-punctate, with dense silvery pubescence; scutum coarsely rugose- or reticulate-punctate, with a faint tendency toward longitudinal arrangement, with scattered silvery pubescence; parapsidal furrows broad, shallow, rugose, obscured by the sculpture; scutellum with similar sculpture to the scutum, the longitudinal tendency more pronounced; postscutellum rather prominent as a transverse bidentately-concave plate; propodeum moderately long, its posterior angles truncate, sub-obliquely reticulate-punctate, at meson with a pair of straight carinae, the lateral patch of pubescence narrow; mesopleurae strongly longitudinally striate; metapleurae strongly reticulate-punctate. Forewings normal; lightly smoky, the basal portion paler; venation pale, obscure; a small dark stigmal spot is present. Abdomen hardly twice as long as its greatest width; segment 1 short and broad, several times as wide as its length at the median line; 2 longer than 1; 3 plainly longer than 2, fully twice as wide as long; 4 somewhat distinctly shorter than 3; 5 distinctly shorter than 4, shorter than the width across its posterior margin; 6 short; 1 striate, the surface between the striae finely rugose; 2, 4, and 5 finely striate, the surface between the striae smooth and polished; 3 finely densely reticulate, but striate toward its lateral margins; 6 rugose-punctate; abdomen without noticeable pubescence.

Male.—Coxae black, the legs bright reddish-yellow; antennae wholly black. Pubescence of head and thorax finer and not so conspicuous; sculpture of scutum and scutellum without a longitudinal tendency; no particular transverse striae are discernible toward the occiput where the surface is very strongly, transversely rugose-punctate; parapsidal furrows very broad, foveate, and well-marked. Forewings hyaline. Abdomen showing 8 segments, of which 7 and 8 are very short and transverse; stout, about twice as long as its greatest width; segment 4 slightly shorter than 3; 5 shorter than 4, hardly one-half as long as the width across its posterior margin; 3 finely polygonally reticulate; 4 finely striate and reticulate; 5 and 6 striate; 4-8 with dense fine pubescence.

Antennae black; the pedicel somewhat yellowish; scape rather short and stout; pedicel a little longer than its greatest width; funicle 1 a little larger than the pedicel, one-third longer than its greatest width; 2 rather distinctly wider than long; 3 very slightly longer but not perceptibly wider than 2 or 4; 2-7 each about one-half wider than long.

Habitat.—South Queensland: Chinchilla, seven females in January; Dulacca, two females in November; Morven, two females in February, one male in November; Goondiwindi, two females in December.

Type.—South Australian Museum, I. 16076.

Allotype.—In the author's collection.

Paratypes.—In the South Australian and Queensland Museums and the author's collection.

Closely related to *nigricornis* but differs in the concave postscutellum, stouter thorax, and stouter abdomen, segments 3, 4, and 5 being distinctly shorter in relation to their width than in that species; the male abdomen is much stouter than in *nigricornis*.

SCELIO IMPROCERUS new species.

Female.—Length, 3.3-5 mm.

Black; legs bright reddish-yellow, the coxae dusky-black; antennae black, the scape dark red and more or less dusky, the next two joints contrasting clear yellow, the fourth joint more or less yellowish.

Head normal; highly polished; vertex and frons with rather large, circular, confluent punctures; toward the occiput the punctures are arranged in irregular transverse rows; punctures continued on either side of the antennal impression, the mouth with short converging striae; cheeks confluent punctate like the frons; all punctures bear a fine seta but the pubescence is not conspicuous. Antennae stout; scape as long as the next five joints combined; pedicel one-third longer than its greatest width; funicle 1 cupuliform, as long as the pedicel, the remaining joints transverse. Thorax from dorsal aspect, two-thirds longer than its greatest width; from lateral aspect, one-half longer than high, the propodeum not abruptly declivous; pronotum coarsely rugose-punctate and with fine pubescence, the anterior-lateral angles minutely toothed; scutum and scutellum with rather large, circular, confluent punctures and fine inconspicuous pubescence, the punctures less dense on the lateral lobes of the scutum; parapsidal furrows deep and distinct, foveate; postscutellum prominent in the form of an upturned, transverse, bidentately-emarginate plate; propodeum moderately long, rather finely densely punctate, with white pubescence laterally, at the meson with two noticeable longitudinal carinae; depressed area of the mesopleurae strongly longitudinally striate, highly polished and impunctate between the striae; metapleurae longitudinally rugose-punctate. Forewings normal; lightly smoky, paler at base; venation pale, obscure; a small dark stigmal spot is present. Abdomen regularly ovate in outline; about

2½ times as long as its greatest width; segment 1 much shorter than the width across its base; 2 distinctly longer than 1; 3 rather plainly longer than 2, more than twice as wide as long; 4 hardly shorter than 3; 5 a little yet distinctly shorter than 4, somewhat shorter than the width across its posterior margin; 6 two-thirds as long as 5; 1 strongly striate, and finely rugose between the striae; 2 densely striate, the surface between the striae polished and hardly sculptured; 3 densely striate, the striae very broken in outline especially toward the meson where there is a distinct tendency toward reticulation; 4 and 5 finely striate, the striae straight, the surface between faintly sculptured, the median line smooth and without striae; 6 rugose-punctate; 4-6 with scattered fine pubescence.

Male.—Coxae and femora black; antennae wholly black. Scape rather short; pedicel small, hardly longer than its greatest width; funicle 1 cupuliform, a little larger than the pedicel; 2-7 wider than long; 3 not perceptibly larger than 2 or 4. Agreeing with the female but the punctuation of the head is inclined to be reticulate- or rugose-punctate; striae on segments 4 and 5 of abdomen denser and more irregular, the meson of 4 and 5 not smooth, the surface between the striae finely sculptured. Abdomen with 8 visible segments, blunt at apex; 4 rather distinctly shorter than 3; 5 a little more than one-half as long as 4; 6 a little shorter than 5; 7 very transverse; 8 as a thin line; sides and apical third of abdomen with fine pubescence. Forewings sub-hyaline, the venation very pale yellow, the stigmal spot small.

Habitat.—South Queensland: Mt. Tambourine, one male, 12 females, in December and February, A. P. Dodd; Toowoomba, 3 females in March, L. F. Hitchcock; Blackall Range, one female in January.

Type.—South Australian Museum, I. 16077.

Allotype.—In the author's collection.

Paratypes.—In the South Australian Museum and Queensland Museum and the author's collection.

The colour of the scape varies, but is always considerably deeper than that of the pedicel.

This species is allied to *striatifacies*, *punctaticeps*, and *ignobilis*, but the thorax is not so slender, the postscutellum is definitely concave, the punctures of the head are considerably larger, and the striae on segment 3 of the abdomen are irregular. The male antennae differ from those of male *striatifacies*, in the shorter length of the funicle joint; in *striatifacies* funicle 3 is definitely larger than 2 or 4, and 2 and 3 are as long as wide; segments 4 and 5 of the abdomen in *striatifacies* are definitely longer.

SCELIO NIGROBRUNNEUS new species.

Female.—Length, 4 mm.

Black; segments 2 and 3 of abdomen dark reddish-brown, segment 4 suffused reddish dorsally; ventrally the abdomen is wholly deep

reddish; legs, including the coxae, bright reddish-yellow, antennal scape fuscous, the next four joints deep reddish, the remaining joints black; mandibles red, their teeth black.

Head normal; upper frons and vertex with large circular confluent punctures bearing fine pale pubescence which is not conspicuous; against and in front of either lateral ocellus there is a small smooth area with a few minute punctures, or there may be a very narrow smooth path across the vertex between the lateral ocelli; toward the occiput the punctures are arranged in several ill-defined rugose rows; antennal impression rather large, impunctate, the face on either side with strong striae converging toward the mouth; cheeks confluent punctate dorsally, with several strong striae on the lower half; mandibles large, bidentate, the teeth strong and acute. Antennal scape moderately long and stout; pedicel two-thirds longer than its greatest width; funicle 1 cupuliform, a little shorter than the pedicel, the remaining joints transverse. Thorax from lateral aspect, not much longer than high; from dorsal aspect, one-half longer than its greatest width, the propodeum short; pronotum coarsely rugose-punctate and with noticeable long fine pubescence; scutum confluent punctate, the punctures large, circular, and shallow, and between the large punctures are small irregular ones, the sculpture with a reticulate tendency posteriorly; parapsidal furrows broad and rugose; scutellum coarsely reticulate-punctate; scutum and scutellum with a pubescence of very fine long setae; postscutellum prominent, transverse, rugose, its posterior margin gently convex; propodeum very short at meson, its posterior angles truncate, rugose, laterally with fine sub-oblique irregular striae and dense fine punctures, the lateral patch of pubescence narrow; mesopleurae strongly longitudinally striate; metapleurae strongly irregularly rugose-punctate. Forewings lightly smoky, paler at base; submarginal vein yellow, distinct, the stigmal vein deep fuscous and very conspicuous, the stigmal spot hardly marked. Abdomen scarcely more than twice as long as its greatest width; segment 1 short, transverse, one-third as long as its basal width; 2 almost twice as long as 1; 3 a little longer than 2, rather less than one-half as long as wide; 4 hardly shorter than 3, two-thirds as long as the width at its posterior margin; 5 a little shorter than 4, somewhat longer than its width at the posterior margin; 6 two-thirds as long as 5, as long as its basal width; 1 strongly striate and between the striae shallowly rugose; 2 finely very densely striate, and between the striae finely coriaceous; 3 more strongly striate than 2, the striae irregular and broken in outline, the surface between the striae quite strongly rugose; striae on 4 straight and more regular, the sculpture between finer, and there is a definite median stria; 5 rather sparsely strongly striate, the surface between hardly sculptured; 6 shallowly rugose-punctate and pubescent; lateral margins of 2-5 with large shallow indefinite punctures bearing long fine setae.

Male.—Unknown.

Habitat.—South Queensland: Chinchilla, one female in February. New South Wales: Moree, six females in January and March, A.P.D.

Type.—South Australian Museum, I. 16067.

Paratypes.—In the Queensland Museum and the author's collection.

The stout thorax, short propodeum, and transverse first abdominal segment among the species with the wholly striate abdomen and densely punctate scutum, occur in *amoenus* and *notabilis*. In *amoenus* the scutum is highly polished and the punctures are not confluent, the post-scutellum is incised at the meson, the propodeum is more abruptly declivous from lateral aspect, the striae on segments 2-4 are much stronger, and the rugose sculpture on segment 3 is much stronger. In *notabilis* the forewings are stained yellowish, the striae on segments 3 and 4 of abdomen are sparse and very strong, and the scutum bears strong longitudinal striae or carinae. *Nigrobrunneus* approaches *orientalis* also, the sculpture of the thorax and of segment 3 of the abdomen being very similar, but in *orientalis* segment 1 is long, fully as long as its basal width, and the mesopleurae are not striate.

The colour of the abdomen is constant in all seven specimens, and is probably a valid specific character.

SCELIO NOTABILIS new species.

Female.—Length, 3.75 mm.

Black; legs, including the coxae, bright reddish-yellow; antennae black, the first three joints clear testaceous, the fourth suffused with yellow.

Head normal; highly polished; without conspicuous pubescence, but each puncture bears a very fine short seta; frons and vertex with numerous large circular punctures, dense but not confluent, toward the occiput arranged confluent in two or three sub-transverse rows; against the occiput with two strong sub-transverse carinae or striae; antennal impression broad, smooth, on either side with four or five strong striae converging to the mouth; cheeks with two strong central carinae, confluent punctate, the punctures large and shallow; mandibles bidentate, the teeth long and acute. Antennal scape as long as the next five joints combined; pedicel one-half longer than its greatest width; funicle 1 cupuliform, slightly shorter than the pedicel, 2 and the following transverse. Thorax stout; from lateral aspect as long as high, the propodeum abruptly declivous; from dorsal aspect a little longer than its greatest width; pronotum coarsely rugose and with blackish pubescence; parapsidal furrows not foveate, straight, almost parallel, obscured by the sculpture; median lobe of the scutum confluent punctate, the punctures very large, oval, with a rugose tendency and more or less longitudinally arranged, separated by several strong irregular longitudinal striae or carinae which are more or less obscure; parapsides with large confluent punctures with a rugose tendency; scutum with a pubescence of long rather stiff black hairs; scutellum strongly rugose- or reticulate-punctate, with a dense pubescence of stiff black setae; postscutellar plate prominent, transverse, rugose, with prominent posterior angles, its posterior margin

uneven and faintly incised at the meson; propodeum rather short, its posterior angles truncate, at meson coarsely rugose-punctate and with a pair of median carinae, at base on either side with a small smooth shining area, laterally densely finely punctate and with dense white pubescence; depression of the mesopleurae smooth, shining, the area almost attaining the posterior margin, dorsad of this area with several very strong striae, anteriorly with strong punctures separated by three or four strong oblique striae, posteriorly with a row of small punctures; metapleurae coarsely longitudinally rugose-punctate. Forewings lightly yellowish, the base hardly paler; venation pale yellow, the stigmal spot pale but rather large. Abdomen hardly more than twice as long as its greatest width; segment 1 broad, less than one-half as long as its basal width; 2 a little longer than 1; 3 somewhat distinctly longer than 2, a little less than one-half as long as wide; 4 hardly shorter than 3, two-thirds as long as the width at its posterior margin; 5 very little shorter than 4, somewhat distinctly longer than the width at its posterior margin; 6 a little shorter than its width at the base; 1 strongly striate, rugose between the striae; 2 strongly striate; 3, 4, and 5 with very strong sparse striae, which are straight and regular, about 16 striae across 3, the surface between hardly sculptured; 6 densely punctate and pubescent; lateral margins of 2-5 with confluent large shallow punctures in longitudinal arrangement bearing fine setae.

Male.—Unknown.

Habitat.—North Queensland: Cairns district, seven females in May and June, A. P. Dodd.

Type.—South Australian Museum, I. 16073.

Paratypes.—In the South Australian and Queensland Museums and the author's collection.

The seven specimens were all collected on the ground in a small isolated patch of jungle, and the species has not been met with elsewhere.

The characters of this species are the stout thorax, peculiar sculpture of the scutum, the partially smooth mesopleurae, the black pubescence of the scutum and scutellum, the small smooth areas on the propodeum, the strongly sparsely striate abdomen, and the short first abdominal segment. It is rather nearly related to *amoenus*, but in that species the mesopleurae lack the smooth area, the scutum and scutellum bear a much finer pubescence, the parapsidal furrows are foveate, the scutum is uniformly punctate without longitudinal striae or carinae, the scutellum is confluent punctate without a rugose tendency, the forewings are smoky instead of yellowish, and the striae on the abdomen are more numerous, there being about 20 striae on segment 3.

SCELIO AMOENUS new species.

Female.—Length, 4.5 mm.

Black; legs, including the coxae, bright reddish-yellow; antennae black, the scape and pedicel clear reddish-yellow, the third joint deep reddish.

Head normal; frons and vertex highly polished, with large circular punctures, dense but not confluent; toward the occiput the punctures are large, confluent, and arranged in transverse rows; antennal impression broad and smooth, on either side with several strong striae converging to the mouth; cheeks with three rows of large confluent punctures, the central carinae not well defined; punctures of frons and cheeks bearing fine dark setae, the pubescence not conspicuous. Antennae normal; scape as long as the next five joints combined; pedicel about twice as long as its greatest width; funicle 1 slightly shorter than the pedicel, 2 and the following transverse. Thorax stout; viewed from the side, a little yet distinctly longer than high, the propodeum sharply declivous; from dorsal aspect one-third longer than its greatest width; pronotum strongly rugose-punctate, with long dark setae; scutum and scutellum highly polished; scutum with very large circular punctures, and at the median line with some smaller punctures, the punctures rather dense, not confluent, but the smaller punctures tend to join to form a few irregular longitudinal rows; parapsidal furrows wide apart, almost parallel, consisting of a row of large confluent punctures, failing by a little to reach the anterior margin; scutellum with large sub-confluent punctures, without a rugose tendency; scutum and scutellum with scattered long fine black hairs; postscutellar plate prominent, its posterior angles rounded, shortly concave at the meson; propodeum short, its posterior angles truncate, for the most part densely rather finely punctate and pubescent, at meson with four short longitudinal carinae; mesopleural depression densely punctate, the punctures moderate in size and arranged in longitudinal lines; metapleurae strongly rugose-punctate. Forewings deeply smoky, the basal portion paler; venation deep yellow and distinct, the stigmal vein fuscous, the stigmal spot dark. Abdomen $2\frac{1}{2}$ times as long as its greatest width; segment 1 short, less than one-half as long as its basal width; 2 a little longer than 1; 3 almost one-half longer than 2, twice as wide as long; 4 hardly shorter than 3, not much shorter than the width at its posterior margin; 5 slightly shorter than 4, very distinctly (about two-fifths) longer than the width at its posterior margin; 6 about as long as the width at its base; 1 strongly striate, rugose-punctate between the striae; 2 strongly striate, the striae somewhat curved and irregular, the surface between finely sculptured; 3 with about 20 strong striae, its basal two-thirds rather strongly rugose-punctate also, causing the striae to become wavy and very broken in outline; 4 and 5 very strongly striate, the striae regular; 5 with rather large shallow punctures between the striae; 6 densely punctate and pubescent.

Male.—Unknown.

Habitat.—South Queensland: Blackall Range, one female in February, A. P. Dodd.

Type.—South Australian Museum, I. 16072.

The differences between this form and *notabilis* have been pointed out in the discussion of the characters of the latter species. The abdomen

is of the same shape in both species, but in *notabilis* the striae on segment 3 are regular and no rugose-punctuation is discernible. The thorax in *amoenus* is less stout.

SCELIO ORIENTALIS Dodd.

Archiv fur Naturgeschichte, Berlin, Vol. 80, 1915.

Female.—Length, 3.75-4 mm.

Black; legs, including coxae, bright reddish-yellow; antennae black, the scape reddish-yellow, the pedicel and funicle 1 more or less reddish.

Head normal; upper frons and vertex with large dense or subconfluent punctures, and with an inconspicuous pubescence of very fine pale hairs; punctures of frons with a tendency toward longitudinal arrangement; toward the occiput the punctures are confluent and arranged in irregular transverse rows; between the lateral ocelli is a transverse area, smooth except for a few punctures; antennal impression not large, the face on either side with several strong striae converging toward the mouth; cheeks with the usual three or four carinae or striae, between these confluent rugose-punctate; mandibles bidentate, the teeth acute and moderately long. Antennae normal; scape as long as the next five joints combined; pedicel one-half longer than its greatest width; funicle 1 cupuliform, a little longer than the pedicel, 2 and the following joints wider than long. Thorax from lateral aspect one-third longer than high, the propodeum rather abruptly declivous; from dorsal aspect hardly one-half longer than its greatest width; pronotum strongly rugose-punctate and with fine pale pubescence; scutum with large circular confluent punctures; parapsidal furrows rugose, complete but obscure; scutellum with large confluent punctures with a tendency toward reticulate arrangement; scutum and scutellum with a pubescence of very fine pale hairs; postscutellum not prominent, rugose, its posterior margin gently convex; propodeum short, its posterior angles truncate, laterally with rather small confluent punctures and dense silvery pubescence, at meson with large punctures and several short obscure carinae; mesopleurae with rather small subconfluent punctures arranged longitudinally; metapleurae with rather small dense punctures centrally, strongly rugose-punctate dorsally and ventrally. Forewings rather darkly smoky, the basal portion yellowish; venation very distinct, the submarginal vein dark yellow, the stigmal vein fuscous, the stigmal spot small and dark. Abdomen $2\frac{1}{2}$ times as long as its greatest width; segment 1 as long or a little longer than its basal width; 2 not much longer than 1; 3 somewhat distinctly longer than 2, fully twice as wide as long; 4 hardly shorter than 3, three-fifths as long as the width at its posterior margin; 5 somewhat shorter than 4, not or hardly longer than the width at its posterior margin; 6 as long as the width at its base; 1 strongly striate, between the striae rather strongly rugose; 2-5 highly polished; 2 strongly striate, faintly sculptured between the striae; 3 strongly striate, the striae inclined to be wavy and broken in outline, the surface between definitely rugose; striae strong and straight on 4 and 5, sparser on 5, the surface

between finely granulate; striae failing at the median line of 4 and posterior third of 3; 6 rugose-punctate and pubescent; basal depression of segment 2 with raised lateral angles.

Male.—Coloured like the female except that the antennae are wholly black. Head, scutum and scutellum confluent punctate with a reticulate tendency; striae on segments 3-5 of abdomen finer than in the female. Abdomen blunt at apex; segment 5 hardly more than one-half as long as the width at its posterior margin; 6 transverse; 7 very short; 4-6 with a pubescence of short fine hairs. Antennal scape rather short; pedicel hardly longer than its greatest width; funicle 1 one-third longer than the pedicel; 2 somewhat wider than long; 3 slightly wider and distinctly longer than 2, a little longer than wide; 4-7 quadrate, each a little shorter than 3.

Habitat.—Queensland: Cairns district, one male (type) in February, one female in January; Rockhampton, one male in February; Blackall Range, three females, one male, in February, A. P. Dodd.

Type.—South Australian Museum, I. 11088.

In the Cairns female, the punctures on the frons are less dense, the irregular blunt carinae more conspicuous. A jungle species.

Notabilis and *amoenus* resemble *orientalis* in the stout thorax and large punctures of the head, scutum and scutellum, but differ in the short first segment of the abdomen, the emarginate postscutellum, and the punctuation of the scutum is different. *Nigrobrunneus*, another species with stout thorax and large punctures of the head and thorax, also has the first segment of the abdomen short, and the mesopleurae are striate. In *striatifacies*, *punctaticeps*, *ignobilis*, and their relations, the thorax is of a more slender type, and the punctures of head and thorax are small. In *asperatus*, the punctuation of the scutum is very definitely reticulate.

SCELIO FLAVICORNIS Dodd.

Trans. Royal Soc. of S. Australia, Vol. xxxvii., 1913, p. 136.

S. pilosus Dodd, *ibidem*, p. 137.

S. pilosiceps Dodd, Proc. Royal Soc. of Q'land, Vol. xxvi., 1914, p. 116.

S. locustae Dodd, *ibidem*, p. 117.

S. perplexus Dodd, *ibidem*, p. 117.

Female.—Length, 3.4-4.8 mm.

Black; coxae black, the legs bright red or dark red, the femora sometimes piceous; antennae black, the first three joints sometimes washed with brown; mandibles very deep red.

Head normal; vertex rather finely densely reticulate-punctate; toward the occiput with open reticulation arranged transversely; upper frons with strong sparse irregular longitudinal striae, the surface between definitely rugose-punctate or almost smooth; lower frons

regularly striate, the surface between smooth; antennal impression narrow and smooth; cheeks broad, densely rugose-punctate; frons and cheeks with a very conspicuous pubescence of stiff silvery-white hairs, the hairs finer and less conspicuous on the vertex. Antennae normal; scape slender, fully as long as the next five joints combined; pedicel one-half longer than its greatest width; funicle 1 cupuliform, a little longer and wider than the pedicel, 2 and the following transverse. Thorax stout; from lateral aspect one-third to one-half longer than high, the propodeum sloping; from dorsal aspect one-third to one-half longer than its greatest width; pronotum and anterior margin of meso- and metapleurae with a pubescence of stiff silvery hairs, which are scattered over the scutum, but the scutellum bears fine pubescence; pronotum coarsely reticulate-punctate; scutum and scutellum reticulate- or rugose-punctate, coarse or shallow, with a slight or very decided tendency toward longitudinal arrangement; parapsidal furrows not evident; postscutellum very transverse, its posterior margin feebly convex; propodeum moderately short, its posterior angles rounded, densely rather finely reticulate-punctate, at meson with several strong striae or carinae, against lateral margins with fine pubescence, and toward posterior angles with stiff white pubescence; mesopleurae finely longitudinally striate and densely finely punctate; metapleurae rather finely reticulate-punctate, but with coarser sculpture anteriorly. Forewings smoky, the basal portion subhyaline; venation pale yellow, indistinct, the stigmal vein fuscous, the stigmal spot obscure. Abdomen two to three times as long as its greatest width; segment 1 shorter than the width across its base; 2 not much longer than 1; 3 one-half longer than 2, twice as wide as long; 4 as long as 3, a little to one-half shorter than the width at its posterior margin; 5 somewhat shorter than 4, longer than the width at its posterior margin; 6 hardly one-half as long as 5; 1 strongly striate, finely or strongly rugose between the striae; 2 densely striate, and finely granulate between, the sculpture sometimes subobsolete except laterally; 3 finely striate and granulate between the striae which sometimes fail at the meson, or strongly striate, the striae for the anterior half broken and irregular, and definitely rugose between; 4 and 5 finely striate and finely granulate between the striae which sometimes fail at the meson of 4; 6 rugose-punctate; sides of abdomen and segments 5 and 6 with scattered stiff white hairs; lateral angles of groove at base of segment 2 with raised margins.

Male.—Striae on upper frons less distinct, the sculpture appearing longitudinally reticulate-punctate; pubescence of head and thorax rather finer than in the female; segments 2-6 of abdomen rather finely striate and granulate between the striae which sometimes fail at the meson. Antennae tawny-yellow, the scape piceous; scape stout and rather short; pedicel a little longer than its greatest width; funicle 1 cupuliform, distinctly longer than the pedicel, one-third longer than its greatest width; 2 somewhat wider than long; 3 scarcely larger than 2 or 4, somewhat wider than long; 4-7 subequal, each somewhat wider than long.

Habitat.—Queensland: Cairns district, 0-2,500 feet, a small series in February and March; Herbert River, one pair in March; Brisbane, a series in November-April. New South Wales: Clarence River, one female in May.

Type.—South Australian Museum, I. 1367.

This species is variable in respect to size, stoutness of the thorax and abdomen, and coarseness of the sculpture. It is difficult to reconcile the robust, broad abdomened, coarsely sculptured forms with the small, slender, finely sculptured specimens, but they appear to intergrade; it is possible, however, that more than one species is represented in the series.

Unfortunately, I have described the species under five different names and am now glad to establish the synonymy. *Flavicornis* was described from the Cairns district, and is a male with hyaline wings, and the striae failing medially on segments 2 and 3 of the abdomen. *Perplexus*, described from the Herbert River, appears to be the common form of the male in which the abdominal segments are uniformly striate and the wings are not hyaline; in my collection are further males from Cairns and Brisbane. The type specimen of *pilosus*, from the Cairns district, represents the typical female, midway in size and coarseness of sculpture between the robust and slender forms; the type of *pilosiceps*, from the Clarence River, is of this form, to which most of the females from Brisbane and from the Atherton Tableland belong. *Locustae*, described from the Herbert River, is a small specimen with dark femora and very fine sculpture; I have a similar female from Brisbane. Most of the females from the lowlands of the Cairns district are very robust and coarse in sculpture, and one or two from Brisbane tend toward this form. This is seemingly the most abundant species in the vicinity of Brisbane.

The species is characterised by the striae on the upper frons in the female. The stiff silvery pubescence of the head is another feature, which is found to a lesser extent in *bipartitus* and the species of the *nigricornis* group. The male may be distinguished from that of *bipartitus* in the stouter abdomen, shorter first abdominal segment, rounded propodeal angles, and in funicle 3 of the antennae being very little larger than 2 or 4.

SCELIO BIPARTITUS Kieffer.

Berlin Ent. Zeitschr., Vol. 51, 1907, p. 296.

S. australis Froggatt, Bull. No. 29, N.S.W. Dept. of Agric., 1910, pp. 34-35.

S. froggatti Crawford, Proc. U. S. National Museum, Vol. 41, 1911.

S. ovi Girault, Proc. Ent. Soc. of Washington, Vol. xv., 1913, p. 4.

S. affinis Dodd, Proc. Royal Soc. of Q'land, Vol. xxvi., 1914, p. 116.

Female.—Length, 3.5-5 mm.

Black; legs, including the coxae, bright reddish-yellow, the coxae rarely brown; antennae black, the scape often yellow, the next two joints sometimes yellowish; mandibles red.

Head normal; cheeks and frons with a conspicuous pubescence of moderately-fine silvery-white hairs, which are finer and less noticeable on the vertex; frons and vertex varying from confluent punctate with a slight reticulate tendency to very definitely reticulate- or rugose-punctate, the punctures large and deep, rarely rather fine and shallow on the vertex; toward the occiput the sculpture is arranged transversely; antennal impression moderately small, smooth, the face on either side with striae converging toward the mouth, but often the large punctures of the upper frons continue for some distance; cheeks rather broad, with large confluent punctures, more or less reticulate; mandibles strongly bidentate. Antennae normal; scape as long as the next five joints combined; pedicel almost twice as long as its greatest width; funicle 1 cupuliform, slightly longer than the pedicel, 2 and the following transverse. Thorax, from lateral aspect, one-half to two-thirds longer than high, the propodeum sloping; from dorsal aspect, about two-thirds longer than its greatest width; pronotum coarsely rugose-punctate and with dense silvery pubescence; scutum and scutellum with scattered pubescence, strongly reticulate-punctate; parapsidal furrows consisting of a row of rugose punctures, complete but obscured by the sculpture; post-scutellum transverse, rugose, not prominent, its posterior margin almost straight; propodeum rather short at meson, long laterally, its lateral margins converging, its posterior angles truncate, at meson with 4-6 striae or carinae of which the median pair is very distinct, the surface between rugose-sulcate, for the rest densely finely pubescent and rather finely densely punctate; mesopleurae rather finely densely subconfluently punctate, arranged in longitudinal rows; metapleurae more strongly confluent punctate with an irregular longitudinal tendency. Forewings normal; smoky, the basal portion subhyaline; venation pale yellow, the stigmal vein and spot brown. Abdomen regularly fusiform, slender, three times as long as its greatest width; segment 1 as long or a little shorter than its basal width; 2 rather distinctly longer than 1; 3 plainly (about one-third) longer than 2, from three-fourths to almost as long as its greatest width; 4 a little shorter than 3, as long as the width at its posterior margin; 5 a little shorter than 4, plainly longer than the width at its posterior margin; 6 one-half as long as 5, as long or longer than its basal width; 1 strongly striate, rugose between the striae; 2 less strongly striate than 1, but more strongly so than 3 or 4; 3-5 densely striate, the striae regular and straight except at the meson of 3, between the striae granulate, this sculpture stronger at the meson of 3; 3 and 4 with a smooth posterior path which is broadest at the meson; 6 rugose-punctate and pubescent.

Male.—Hardly differing from the female except in sexual characters; the striae on the abdominal segments are rather sparser and may fail

narrowly at the median line of 5; segments 4-5 with scattered short fine pubescence, which is denser on 6.

Antennae somewhat variable in colour, sometimes almost wholly clear testaceous, or piceous at base gradually verging to testaceous; scape short and stout, rather shorter than the next four joints combined; pedicel no longer than its greatest width; funicle 1 distinctly longer than the pedicel, one-half longer than its greatest width; 2 as wide as long; 3 distinctly larger than 2 or 4, as long as wide; 4-7 each distinctly wider than long.

Habitat.—Northern Territory: Darwin. Queensland: Mossman, Cairns, Kuranda, Atherton, Innisfail, Herbert River, Mackay, Childers, Blackall Range, Brisbane, Mount Tambourine, Chinchilla. New South Wales: Tweed and Clarence Rivers.

Type.—In the British Museum.

The type of *australis* is in the New South Wales Department of Agriculture; that of *froggatti* in the United States National Museum; that of *ovi* in the Queensland Museum; and that of *affinis* in the South Australian Museum.

Kieffer described this species from a male from Mackay, Queensland. Some years ago, the writer examined the type in the British Museum, and made descriptive notes, from which he is able to deduce that the common species of Eastern Australia which has gone under the name of *australis* Froggatt, is a synonym of Kieffer's species.

I have already stated that *froggatti* is a synonym of *australis*, and, in my opinion, *ovi* should fall also. The character of the yellow antennal scape can hardly be considered valid, and the differences in venation, noted by Girault, would not appear to be of much value. It is significant that both *ovi* and *australis* are taken in company in almost every district and are both parasitic on the eggs of *Locusta danica* and *L. australis*.

The type of *affinis* Dodd is a male in which the apical antennal joints are darker than usual, but otherwise it agrees with typical males.

Bipartitus is a very common form in the coastal districts of Queensland; it has been taken in one inland locality, Chinchilla, where it is apparently rare. Both the known hosts are rather definitely restricted to the coast, and are not inland insects.

There is considerable variation in size, and, to a lesser extent, in the coarseness of the sculpture. A peculiar female from the Blackall Range shows segments 4 and 5 of the abdomen smooth and without striae except laterally, the suture between 4 and 5 is obliterated medially, and there is a sharply-excised row of small foveæ near the base of 4.

Of the females that might be confused with *bipartitus*, *asperatus* may be recognised by the absence of conspicuous pubescence on the head, the smaller non-confluent punctures of the frons, and the shallow more open reticulation of the scutum. *Striatifacies*, *punctaticeps*, *ignobilis*, *diemenensis*, and *improcerus* differ in the lack of conspicuous pubescence on the head, and the small punctures of the head and thorax. *Orientalis* differs in the absence of the conspicuous silvery pubescence, the declivous

propodeum, shining appearance, &c. In *flavicornis*, the pubescence of the head is still coarser, and the frons is longitudinally striate. In the male sex, *bipartitus* differs from most of the species in having the antennae not wholly black, and the abdomen being slender.

SCELIO ASPERATUS new species.

Female.—Length, 3.5-4.8 mm.

Black, the abdomen sometimes washed with deep brown; legs, including the coxae, bright golden-yellow; antennae black, the scape and pedicel sometimes suffused with red.

Head normal; toward the occiput strongly transversely rugose-punctate; vertex between the ocelli smooth, with rather numerous scattered punctures of moderate size; frons with dense punctures of moderate size and subconfluent; on either side of the smooth antennal impression without punctures, with sparse striae converging toward the mouth; cheeks coarsely shallowly rugose-punctate and with two strong central carinae; pubescence of head very fine and inconspicuous, that of the cheeks longer. Antennal scape as long as the next four joints combined; pedicel one-half longer than its greatest width; funicle 1 cupuliform, slightly longer than the pedicel, two-thirds longer than its greatest width, 2 and the following transverse. Thorax from lateral aspect two-thirds longer than high, the propodeum not declivous; from dorsal aspect one-half longer than its greatest width; pronotum coarsely rugose-punctate, with rather long setae; scutum and scutellum with scattered fine setae, very strongly rugose- or reticulate-punctate, the punctures very large except at the median line of the scutum; parapsidal furrows rather deep and broad but obscured by the sculpture; post-scutellum showing as a straight very transverse plate; propodeum moderately long, its posterior angles truncate, rather finely rugose-punctate, at meson with several obscure longitudinal carinae of which the median pair is rather well defined, laterally with white pubescence; mesopleurae longitudinally striate, between the striae finely punctate; metapleurae longitudinally striate and more definitely punctate. Forewings lightly smoky, the base paler; venation pale yellow but distinct, the stigmal spot small and dark. Abdomen $2\frac{1}{2}$ times as long as its greatest width; segment 1 about as long as the width at its base; 2 plainly longer than 1; 3 a little longer than 2, twice as wide as long; 4 as long as 3, not much shorter than the width at its posterior margin; 5 distinctly shorter than 4, fully as long as the width at its posterior margin; 6 fully as long as its width at base; 1 strongly striate, finely rugose between the striae; 2-5 rather finely densely striate, the striae straight and regular, failing rather narrowly at the median line of 3, 4, and 5; between the striae coriaceous, this sculpture stronger on 3, so that where the striae fail at the meson, the sculpture is finely reticulate; 6 rugose-punctate.

Male.—Coxae dusky-black, the legs bright reddish-yellow; antennae wholly dusky-black. Frons and vertex of head strongly rugose-punctate, toward the occiput with a transverse tendency, striate on either side of

the antennal impression. Thorax from lateral aspect stouter, less than two-thirds longer than high; parapsidal furrows well marked. Forewings tinted as in the female. Abdomen with segments 2-5 without noticeable sculpture between the striae; 3, 4, and 5 smooth at the median line; 4-6 with a conspicuous pubescence of long fine setae; 5 somewhat shorter than the width at its posterior margin; 6 hardly as long as the width at its posterior margin; 7 and 8 very short, transverse. Antennal scape hardly as long as the next four joints combined; pedicel small, slightly longer than its greatest width; funicle 1 considerably larger than the pedicel, one-third longer than its greatest width; 2 wider than long; 3 a little wider than 2, plainly larger than 4, slightly wider than long; 4-7 much wider than long.

Habitat.—South Queensland: Brisbane, one pair in November; Mount Tambourine, one female, five males, in February; Blackall Range, one female in February; Chinchilla, two females in January; Morven, one female in February. New South Wales: Moree, two females in March.

Type.—South Australian Museum, I. 16074.

Allotype.—In the South Australian Museum.

Paratypes.—In the Queensland Museum and the author's collection.

A somewhat variable species in regard to size and stoutness. A very large female from the Blackall Range has the abdomen three times as long as its greatest width, the segments relatively longer, and the sculpture between the striae on segment 3 is coarser. A rather large example from Morven has a stouter thorax, and very stout abdomen which is no more than twice as long as its greatest width, while the sculpture between the striae on the segments is very fine.

A female from the Atherton tableland, North Queensland, taken in March, differs in that the wings are yellowish instead of smoky, and the punctures on the frons are sparser.

In the female, *asperatus* differs from *punctaticeps* and related forms, and approaches *bipartitus*, in having the scutum and scutellum coarsely reticulate-punctate; however, in *bipartitus* there is a conspicuous pubescence on the head, and the sculpture of the head is coarser and denser, being reticulate-punctate.

SCELIO PARVICORNIS Dodd.

Proc. Royal Soc. of Q'land, vol. xxvi., 1914, p. 113.

Female.—Length, 3.75 mm.

Black; legs reddish-yellow, the coxae dusky-black, the femora dusky; antennae wholly black.

Head normal; vertex and upper frons smooth, with numerous scattered punctures of moderate size, each bearing a very fine and short seta; toward the occiput with faint transverse striae; lower frons with rather dense striae converging toward the mouth, the antennal impression moderately large and smooth; cheeks with a few punctures.

Antennae short; scape stout, as long as the next five joints combined; pedicel one-half longer than its greatest width; funicle 1 a little yet distinctly shorter and narrower than the pedicel; 2-4 very transverse, the club joints very transverse. Thorax slender; from lateral aspect about twice as long as high, the propodeum not abruptly declivous; from dorsal aspect almost twice as long as its greatest width; pronotum coarsely rugose-punctate and pubescent; scutum confluent punctate, the punctures of moderate size, with a reticulate tendency, and on the median lobe with a decided tendency toward arrangement in longitudinal lines; parapsidal furrows broad, deep, and foveate; scutellum confluent punctate, with a slight reticulate tendency; postscutellum very short, transverse, not bidentate or conspicuous; propodeum moderately long, densely finely punctate in suboblique rows, at meson with several more or less obscure carinae. Forewings normal; lightly cloudy, the basal portion subhyaline; venation pale and indistinct, the stigmal spot hardly marked. Abdomen $2\frac{1}{2}$ times as long as its greatest width; segment 1 a little shorter than the width across its base; 3 rather distinctly longer than 2, twice as wide as long; 4 a little shorter than 3, about three-fifths as long as the width at its posterior margin; 5 not much shorter than 4, hardly as long as the width at its posterior margin; 1 strongly striate, and rugose between the striae; 2 rather finely and densely striate; 3 finely striate, and granulate between the striae which fail rather broadly at the median line; 4 and 5 broadly smooth at the meson, for the rest finely striate; 6 rugose-punctate.

Male.—Unknown.

Habitat.—South Australia (exact locality unknown).

Type.—Macleay Museum, Hy. 4D.

The type is unique. This species belongs to the *punctaticeps* group, of which, on account of the sparse punctuation of the head, its closest affinity is with *diemenensis*. However, the punctures on the head are less sparse in that species, the parapsidal furrows are not deep and broad, the punctuation of the scutum has no reticulate or rugose tendency, and the striae on segments 3-5 of the abdomen are more numerous.

SCELIO STRIATIFACIES Dodd.

Proc. of Royal Soc. of Queensland, Vol. xxvi., 1914, p. 115.

Female.—Length, 3.5-4.25 mm.

Black; antennae wholly black; legs bright reddish-yellow, the coxae black.

Head normal; vertex and frons not polished but finely coriaceous or granulate, with dense punctures of moderate size which are not confluent; punctures confluent toward the occiput and arranged in transverse rows; between the ocelli a very few punctures only are present; cheeks confluent punctate; face on either side of antennal depression with striae converging toward the mouth; head without noticeable pubescence except for fine setae on the cheeks and lower face.

Antennae as in *punctaticeps*. Thorax from lateral aspect almost twice as long as high, the propodeum not declivous; from dorsal aspect almost twice as long as its greatest width; pronotum coarsely rugose-punctate and with long white setae; scutum confluent punctate, the punctures moderately large and somewhat uneven in size, with a tendency toward longitudinal arrangement; scutellum confluent punctate; postscutellum not conspicuous, as a very transverse plate; propodeum long, its posterior angles truncate, sculptured as in *punctaticeps* but of the central carinae the median pair only are well marked; mesopleurae for the most part longitudinally striate and confluent punctate; metapleurae densely punctate. Forewings normal; smoky, the basal portion yellowish; venation pale yellow, indistinct, the stigmal spot small and distinct. Abdomen not as slender as in *punctaticeps*, tapering more abruptly from the posterior margin of segment 3; rather less than $2\frac{1}{2}$ times as long as its greatest width; segment 1 a little shorter than the width across its base; 2 one-half longer than 1; 3 slightly longer than 2, twice as wide as long; 4 slightly shorter than 3, very distinctly shorter than the width across its posterior margin; 5 a little more than one-half as long as 4, not or scarcely longer than the width across its posterior margin; 6 hardly one-half as long as 5; 1 strongly striate and rugose between the striae; 2-5 finely densely striate, the striae not as regular as in *punctaticeps* and failing narrowly at the median line of segments 4 and 5, the surface between the striae finely granulate; pubescence on apical segments much as in *punctaticeps*.

Male.—Agreeing with the female but the femora are piceous; the punctures on the head, although not larger, are denser, being subconfluent on the frons and forming rugose-punctuation on the vertex; the punctures are continued on either side of the antennal depression where there are no distinct striae; the sculpture of the thorax is similar to that of the female; the parapsidal furrows are very deep and broad; the striation of the abdomen is similar but the striae fail rather broadly at the meson of segments 4 and 5 and less so on 3; 6 rugose-striate, smooth medially; 3-6 with scattered pin-punctures and some pubescence. Antennae black, the pedicel suffused with yellow; pedicel small, no longer than wide; funicle 1 cupuliform, almost one-half longer than its greatest width; 2 slightly shorter than 1, but fully as long as its greatest width; 3 a little widened, no wider than long; 4-7 not very much wider than long.

Habitat.—South Queensland: Mount Tambourine, 2,000 feet, two females in February; Brisbane, two males in November; Blackall Range, one female in February; Chinchilla, one female in February. New South Wales: Clarence River, one female (type) in June.

Type.—South Australian Museum, I. 11021.

Very closely related to *punctaticeps*, but the abdomen is stouter, the segments uniformly shorter, the parapsidal furrows are well marked, the upper frons and vertex of the head bear fine granulate sculpture as well as the punctures, and the mesopleurae are confluent punctate and more or less distinctly striate.

SCELIO PUNCTATICEPS Dodd.

Archiv fur Naturgeschichte, Berlin, 79, 1914, p. 77.

S. nigricoxa Dodd, ibidem, p. 78.

Female.—Length, 3-4 mm.

Black; legs, including the coxae, bright reddish-yellow; antennae black, the scape and sometimes the pedicel reddish-yellow; tegulae black.

Head normal; vertex and frons polished, with dense punctures of moderate size which are not confluent; a transverse area between the ocelli smooth and almost devoid of punctures; toward the occiput the punctures are subconfluent with a tendency toward arrangement in transverse rows; on either side of antennal depression with striae converging toward the mouth; cheeks with dense punctures; each puncture bears a very fine, short seta, the pubescence not conspicuous, that of the cheeks longer. Antennae normal; scape as long as the next four or five joints combined; funicle 1 cupuliform, slightly longer than the pedicel, one-third longer than its greatest width, the remaining joints, except the last, twice as wide as long. Thorax normal; rather slender; from lateral aspect almost twice as long as high, the propodeum not declivous; from dorsal aspect almost twice as long as wide; pronotum coarsely rugose-punctate and with scattered long setae; scutum with moderately large subconfluent punctures with a tendency toward arrangement in longitudinal rows, the punctures not uniform in size; parapsidal furrows obscure, being represented by one of the rows of punctures; scutellum with large dense punctures; scutum and scutellum with scattered pubescence; postscutellum not prominent, as a very transverse plate; propodeum long, laterally finely densely punctate and with white pubescence, at meson with several more or less obscure longitudinal carinae, between which the surface is coarsely rugose-punctate; pleurae densely punctate, the punctures moderately small. Forewings normal; when closed failing by a little to reach apex of abdomen; smoky, the basal third pale; venation pale yellow and indistinct; a small distinct stigmal spot is present. Abdomen slender, $2\frac{3}{4}$ times as long as its greatest width, regularly ovate in outline, widest at one-half the length of segment 3 and gradually tapering; segment 1 hardly shorter than the width across its base; 2 one-half longer than 1; 3 scarcely longer than 2, one-half wider than long; 4 hardly shorter than 3, about one-third shorter than the width across its posterior margin; 5 two-thirds as long as 4 and plainly longer than the width across its posterior margin; 6 one-half as long as 5; 1 strongly striate, and rugose between the striae; 2-5 finely densely striate, the striae regular and straight, the surface between finely rugulose or granulate; 6 rugose; segment 4 with a very few scattered fine setae, which are more numerous but still scattered on 5, and moderately dense on 6.

Male.—Agreeing with the female but the coxae are piceous; the punctures on the scutum and scutellum are much larger and confluent; the parapsidal furrows are well marked; the striae fail medially on

segment 5 of abdomen, 6 sparsely striate but smooth at meson. Antennae wholly black; scape almost as long as the next four joints combined; pedicel rather small; funicle 1 cupuliform, one-half longer than its greatest width; 2 scarcely longer than its greatest width; 3 a little widened, no longer than 2, a little wider than long, not very much larger than 4; 4-7 wider than long.

Habitat.—North Queensland: Cairns district, throughout the year, two males, a large series of females; Pentland, in September, one female.

Type.—South Australian Museum, I. 11089.

The male was not at first connected with the female, and was described as *S. nigricoxa*.

SCELIO IGNOBILIS new species.

Female.—Length, 3.3-4 mm.

Black; legs, including the coxae, bright reddish-yellow; antennae black, the scape red but dusky apically, the next two joints more or less washed with red.

Head normal; frons and vertex shining; frons with dense punctures of moderate size; punctures on vertex moderately dense, toward occiput confluent and arranged in transverse rugose rows; pubescence of frons and vertex fine, but more pronounced than in *punctaticeps* or *striatifacies*; lower face with striae converging toward the mouth; cheeks densely punctate and with fine silky pubescence. Antennae as in *punctaticeps* and *striatifacies*. Thorax slender; from lateral aspect twice as long as high, the propodeum not declivous; from dorsal aspect almost twice as long as its greatest width; pronotum coarsely rugose-punctate and with fine long pubescence; scutum with rather large punctures of somewhat uneven size, dense but not confluent, with a tendency toward longitudinal arrangement, there being four or five such rows of punctures on the median lobe posteriorly, with a few scattered long setae; parapsidal furrows well marked and complete; scutellum densely punctate; postscutellum visible as a very transverse plate, not prominent; propodeum coarsely rugose-punctate, more finely punctate and pubescent laterally, its posterior angles rounded, at meson with a pair of longitudinal carinae; mesopleurae densely punctate for the most part, the punctures not large. Forewings smoky, the basal portion pale-yellowish; venation pale yellow, indistinct, the stigmal spot small but well marked. Abdomen rather stout, broadly ovate, slightly more than twice as long as its greatest width; segment 1 as long as the width across its base; 2 one-third longer than 1; 3 a little yet distinctly longer than 2, twice as wide as long; 4 distinctly shorter than 3, not more than one-half as long as the width across its posterior margin; 5 plainly shorter than 4, much shorter than the width across its posterior margin; 6 hardly one-half as long as 5; 1 strongly striate and rugose between the striae; 2-5 densely, finely striate, the striae somewhat irregular; striae failing rather broadly

at the meson of 4 and 5, the smooth area widening posteriorly; there are more setae and pin-punctures on 4 and 5 than in *punctaticeps* and *striatifacies*.

Male.—Unknown.

Habitat.—North Queensland: Atherton tableland, 2,500 feet, four females in March and April. Central Queensland: Rockhampton, one female in May. South Queensland: Boonah, one female in May.

Type.—South Australian Museum, I. 16078.

Paratypes.—In the author's collection.

Of the three closely-related species, *punctaticeps*, *striatifacies*, and *ignobilis*, the abdomen is stoutest in the last-named. In *ignobilis*, the smooth median area on segments 4 and 5 of the abdomen is broader than in *striatifacies*. The mesopleurae are densely but not confluent punctate in *punctaticeps* and *ignobilis*, confluent punctate and more or less distinctly striate in *striatifacies*. The parapsidal furrows are not well defined in *punctaticeps*, conspicuous in the two other species. The granulate appearance of the vertex of the head is found in *striatifacies* only.

SCELIO DIEMENENSIS Dodd.

Proc. Royal Soc. of Q'land, Vol. xxvi., 1914, p. 114.

Female.—Length, 3.40 mm.

Black; legs bright reddish-yellow, the coxae fuscous, the femora faintly dusky; antennae wholly black.

Head normal; vertex smooth, with scattered moderately-small punctures; against the occiput confluent punctate and arranged in subtransverse rows; punctures of frons numerous and moderately dense, each bearing a very fine and short seta; antennal impression small and smooth, the lower face with dense striae converging toward the mouth; cheeks rather densely punctate. Antennae normal; pedicel as long as its greatest width; funicle 1 as long and as wide as the pedicel. Thorax slender; from lateral aspect almost twice as long as high, the propodeum not declivous; from dorsal aspect not much less than twice as long as its greatest width; pronotum confluent rugose-punctate and with long fine setae; scutum and scutellum with a very few long pale setae, densely subconfluent punctate, the punctures moderately small and uneven in size; parapsidal furrows subobsolete, indicated by a row of punctures; postscutellum not prominent, as a transverse line; propodeum rather long, its posterior angles obtuse, densely punctate with obscure oblique striae, and at meson with a pair of straight carinae; mesopleural depression finely densely but not confluent punctate; metapleurae confluent punctate with a longitudinal tendency. Forewings normal; lightly smoky, paler at base; venation pale yellow, indistinct, the stigmal spot not well defined. Abdomen $2\frac{1}{2}$ times as long as its greatest width; segment 1 a little shorter than its basal width; 2 two-thirds longer than 1; 3 a little longer than 2, distinctly less than twice

as wide as long; 4 as long as 3, a little shorter than the width at its posterior margin; 5 plainly shorter than 4, hardly more than one-half as long as the width at its base, and as long as the width at its posterior margin; 6 short, not as long as its basal width; 1 strongly striate and finely rugose between the striae; 2 densely finely striate; 3-5 densely finely striate, the striae a little wavy and irregular, failing broadly at the meson of 4 and 5 and less so on 3; 6 densely punctate and pubescent.

Male.—Unknown.

Habitat.—Tasmania: Hobart, two females, A. M. Lea.

Type.—In the New South Wales Department of Agriculture, Sydney.

Very near *punctaticeps*, *striatifacies*, and *ignobilis*, but differing from all three in the more sparsely punctate head. The striation of the abdomen is very similar to that of *ignobilis*.

SCELIO PLANITHORAX new species.

Female.—Length, 3.90 mm.

Black; legs, including the coxae, intense reddish-yellow; antennal scape deep red, dusky at apex, the pedicel dusky-red.

Head normal; upper frons with numerous well-separated small punctures; between the ocelli the punctures are much sparser and very scattered; against the occiput the punctures are dense, subconfluent, and arranged in about two irregular transverse rows; upper cheeks strongly confluent punctate, the lower cheeks smooth except for a few punctures; punctures of frons continued for a short distance on either side of the smooth impression, the lower face with striae converging toward the mouth; pubescence of head consisting of short fine hairs. Antennae normal; scape moderately long and stout; pedicel one-third longer than its greatest width; funicle 1 cupuliform, one-third longer than its greatest width; 2 and the following transverse. Thorax rather flattened; from dorsal aspect almost twice as long as its greatest width; from lateral aspect fully twice as long as high, the propodeum not declivous; pronotum strongly reticulate-punctate; parapsidal furrows very distinct, consisting of a row of confluent punctures; punctures of median lobe of scutum small, dense, but not confluent except against anterior margin; punctures of parapsides less dense; scutellum punctured like the median lobe; postscutellum not prominent, as a transverse line; propodeum long, its posterior angles rounded, with a well-defined pair of median carinae, its surface densely confluent punctate with a suboblique arrangement; mesopleurae with small dense non-confluent punctures. Forewings rather deeply smoky, yellowish at base; venation very pale yellow and indistinct, the stigmal spot small and obscure. Abdomen a little less than three times as long as its greatest width; segment 1 fully as long as its basal width; 2 one-half longer than 1; 3 a little longer than 2, one-half wider than long; 4 slightly shorter than 3, as long as the width at its posterior margin; 5 distinctly shorter than 4, as long as the width at its posterior

margin; 6 two-thirds as long as 5, shorter than its basal width; 1 strongly striate, and rugose-punctate between the striae; 2 very densely, rather strongly striate, the surface between the striae shining and feebly sculptured; 3-5 very densely and finely striate, the striae straight and regular, the surface between hardly sculptured, with a median path smooth except for a few fine setigerous punctures, the smooth path narrower on 3; 6 rugose-punctate.

Male.—Unknown.

Habitat.—South Queensland: Mount Tambourine, 2,000 feet, two females in April, A. P. Dodd.

Type.—South Australian Museum.

Paratype.—In the author's collection.

A species of the *punctaticeps-striatifacies* relationship, and most nearly allied to *ignobilis* and *diemenensis*. From *ignobilis* it differs in the sparser punctuation of the head, the more regular, distinctly-separated punctures of the scutum, the more slender abdomen, the presence of the smooth median path on segment 3, and the fact that the median path on 4 and 5 is straight and does not widen posteriorly. From *diemenensis* it differs in the colour of the coxae and antennal scape, the very distinct parapsidal furrows, the more even punctuation of the scutum, and the straight median path on segments 4 and 5 of the abdomen.
